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Streptomycin in Preparation of Poor Risk Tuberculous Patients for Surgery—*by Drs. J. Karl Poppe, Ralph Berg and David A. Morris*

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Streptomycin Therapy in Orthopedic Tuberculosis—*by Drs. Felix Jansey, Bradley W. Carr and Edward A. Millar*

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ANESTHESIOLOGY WITHIN THE VETERANS ADMINISTRATION

Chairman's Address

RALPH M. TOVELL, M.D.
Hartford, Conn.

Rather than discuss in general terms the present status or future of the specialty, I have elected to report on progress in anesthesiology within the Veterans Administration. It seemed that this occasion was an auspicious one to outline developments in a governmental organization where revolutionary changes in practice have occurred within the last two years. Prior to the appointment of General Omar N. Bradley as Administrator and Major General Paul R. Hawley as Chief Medical Director, medical organization within the agency had improved little since World War I. Throughout the years between World War I and II neither physicians nor technicians specializing in anesthesiology were employed on a full time basis.

With the enactment of Public Law 293 by the Seventy-Ninth Congress on Jan. 3, 1946, establishing a department of medicine and surgery in the Veterans Administration, the foundation was laid for a far reaching reorganization of facilities for medical care. The objective was to provide medical care second to none for veterans and at the same time provide facilities for teaching and training of medical personnel returning to civilian life after World War II. By this law, physicians, dentists and nurses were no longer subject to the rules and regulations of the Civil Service, although they were to receive the benefits of the Civil Service Retirement Act of May 22, 1920, as amended. Basic requirements for physicians eligible for employment were outlined as follows: (1) citizenship in the United States, (2) graduation from a school of medicine approved by the Administrator, (3) license to practice as a physician in a state or territory of the United States or in the District of Columbia, (4) adherence to the physical requirements of the department and (5) professional qualifications to meet accepted national standards. A new scale of salaries commensurate with training and experience was established. Specialists certified by the American specialty boards and the Veterans Administration were to be paid an additional 25 per cent of base pay up to a limit of $11,000 per year. It is well to emphasize that anesthesiologists were accorded opportunity equal to that of other specialists in reference to income which they might receive. This situation was one of unique advantage to our specialty. The trend toward all too frequent exploitation was avoided. Coupled with this advantage, there was the opportunity and responsibility to provide service to patients and training for residents. The degree to which these responsibilities have been assumed is a measure of success and, at the same time, it is a measure of the need for continuing effort toward an ideal.

The organization of the office of the Chief Medical Director included Professional Services, made up of a representative from each of the specialties of medicine and surgery. Each member is known as a director of his particular division or section. The majority of these persons are part time employees, but in the central office there is a full time cadre who carry on routine business, put into effect the policies promulgated by the division and maintain close contact with all members of the division in order to provide coordination of effort. A parallel organization now exists in each of the thirteen branch offices, and for each branch a branch section chief of anesthesiology has been appointed. These men have unstintingly diverted their efforts from their practices and have given excellent service. In both central and branch offices, the professional service division is operational as well as advisory. Its members visit hospitals to insure adherence to approved practices. Branch section chiefs, when visiting hospitals, check on programs for teaching and contribute to those programs by conduction of clinics and seminars. Their duties, in addition, include evaluation of professional personnel, giving advice on appointments and transfers and procurement of equipment and supplies. Policies regarding construction and remodeling of hospitals are usually accomplished by joint action of the members of the division. Opportunity has been afforded for meetings of branch section chiefs of anesthesiology, at which problems are discussed and policies established.

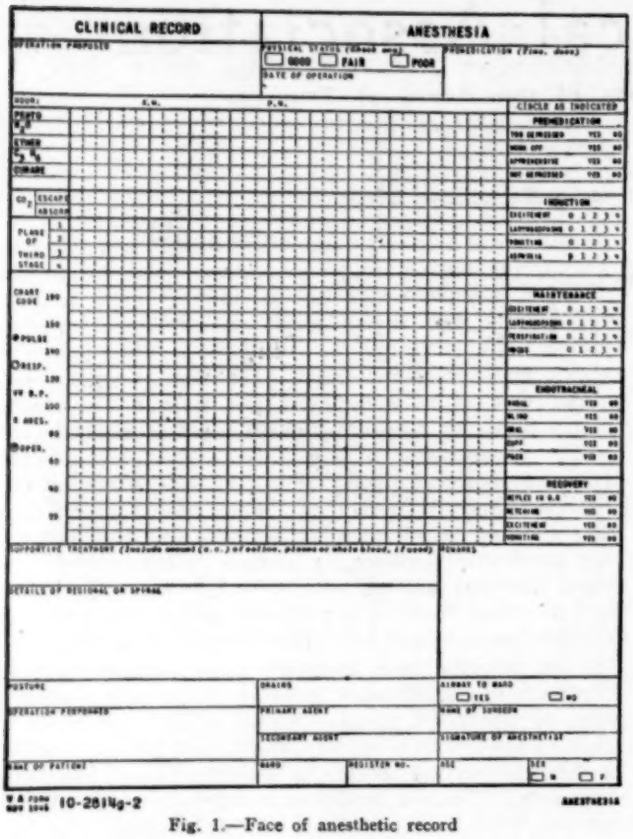
It has been a policy for each general medical and surgical hospital to organize a section on anesthesiology with a chief or acting chief in charge. His duties are to provide coverage in anesthesia, inhalation and intravenous therapy, blood transfusions and diagnostic and therapeutic procedures anesthetic in nature. These duties include preoperative evaluation of patients and administration of preliminary medication and anesthetics, followed by postoperative care of patients whose condition is referable to anesthesia.

Public law 293 authorized establishment of a system of residencies. Through the activities of the chief of the division of research and education, liaison has been effected with medical schools to provide part time consultants and attending physicians in each specialty to nearby Veterans Administration hospitals. This arrangement has worked well and has been particularly advantageous in helping to bridge the gap between

Director of Anesthesiology, Veterans Administration, Hartford Hospital.

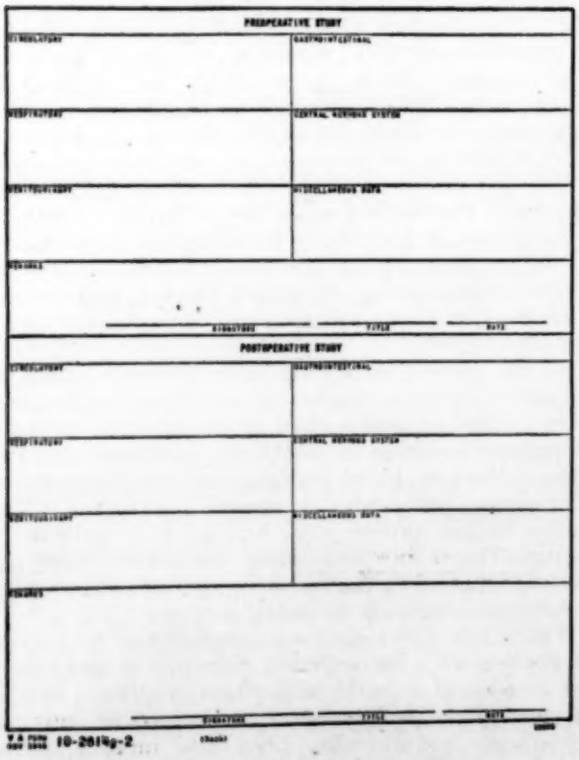
Read before the Section on Anesthesiology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

demand and supply of anesthesiologists in terms of coverage of the constantly increasing work load and in terms of teaching and training of residents. It is


CLINICAL RECORD

ANESTHESIA

Fig. 1.—Face of anesthetic record


PREOPERATIVE STUDY

POSTOPERATIVE STUDY

Fig. 2.—Reverse side of anesthetic record

interesting to note that as of Jan. 31, 1948, twenty-five hospitals had received temporary approval for residency in anesthesiology. Sixty-three residents were enrolled; one full time employee was receiving training and twenty-nine vacancies existed.

As of March 5, 1948, five certified anesthesiologists were connected with hospitals as full time employees and forty-one other certified anesthesiologists were serving in the capacity of consultants or attending anesthesiologists on a part time basis. In addition, sixty-eight anesthesiologists were employed on a full time basis and twenty-four were cooperating as consultants or attending anesthesiologists on a part time basis. These men are progressing toward certification within the near or foreseeable future. The figures indicate a major change in coverage, but one cannot gloat over the improvement because many hospitals are still lacking the services of men well trained in the specialty. The situation is a challenging one, demanding our best efforts and utmost cooperation in providing adequate

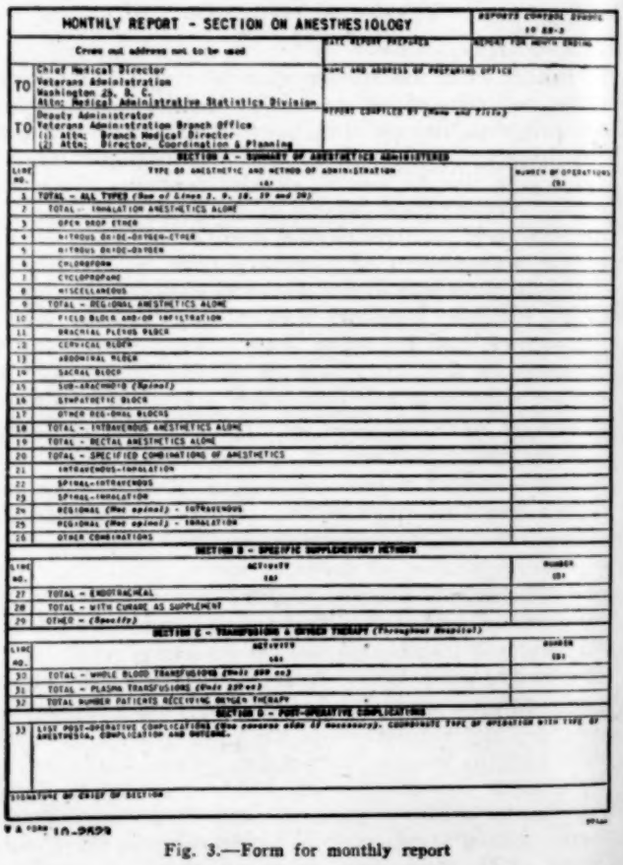

MONTHLY REPORT - SECTION ON ANESTHESIOLOGY

Fig. 3.—Form for monthly report

coverage. The need is acute, because officers in the Army and Navy assigned to the Veterans Administration are now completing their tours of duty. An appreciable number of these men have shown zeal and aptitude, and their services have been of real value. Their replacement will be difficult, but nevertheless it is imperative. Your cooperation in providing a solution to the problem is invited.

In order for any program of training to be successful, it was realized that standard forms for recording each anesthetic administered were necessary. With the active cooperation of the branch section chiefs, such a form (figs. 1 and 2) was developed and made available to each hospital. Anesthetists attached to certain hospitals have requested permission to use other forms, embodying facilities for coding and punching. These requests have been granted. In all hospitals monthly reports (fig. 3) have been prepared on a standard basis and submitted to the central office for statistical

evaluation. These reports have proved of value in determining distribution of work and in estimating needs for equipment and skilled coverage. Agents and methods employed during the last six months of 1947 are indicated in tables 1 through 5. These tables reflect the magnitude of the work and the distribution of agents and methods.

Comparison of specific supplementary methods employed in January 1947 with those in January 1948 reveals that endotracheal intubations increased from 815 to 1,120. Instances of employment of curare increased from 288 to 663. In January 1947, 5,672 transfusions and 2,217 units of plasma were administered, whereas in January 1948, 7,757 transfusions and 1,047 units of plasma were given. In the same months the total number of anesthetics increased from 12,830 to 16,425, whereas the total number of patients receiving oxygen therapy increased from 1,957 to 2,606. It is fair to state that, without increased skill in coverage, the change in work load to a much higher incidence of major operative procedures would not have been possible.

Last year at the Annual Session, this Section initiated an Anesthesia Study Commission, with the Chairman of the Committee empowered to report progress at this meeting. So far as the Veterans Administration is concerned, attempt has been made to cooperate by establishment of a parallel organization including each of the branch section chiefs as members responsible for the collection of data in their own areas. Mechanisms have been set up whereby each chief will be notified of untoward events occurring in hospitals, with responsibility resting with him to investigate each incident. It is the prerogative of each chief to establish an anesthesia study commission in his branch as the situation demands.

Throughout the year 1947 and continuing into 1948, monthly reports have included lists of complications occurring in each hospital. These lists are studied carefully by each branch section chief, and he is at liberty to investigate and recommend remedial measures aimed at prevention and correction. It has been a task of some magnitude to establish this system of reporting, and, at this time, it would be premature to attempt a detailed report correlating such factors as operation and anesthetic agents and methods employed, with complications including incidence of recovery and fatality. An unwarranted high incidence of untoward reactions to anesthetics topically applied preliminary to endoscopic examination of the larynx, bronchi, esophagus or stomach was noted. A technical bulletin on this subject was prepared and distributed. By this means, attempt was made to acquaint personnel with the relative hazards of agents and methods, and safeguards were promulgated. Likewise, a bulletin was issued dealing with the intravenous administration of fluids, the hazards of air emboli and their prevention. At the present time a bulletin is being prepared for issue on the subject of mechanical resuscitators and their operation, particularly for patients suffering from poliomyelitis. These efforts are a part of the educational program, and it is the intention to continue along these lines, enlisting the assistance of eminent educators interested in each topic prepared.

TABLE 1.—*Anesthetics Administered in Hospitals of the Veterans Administration July Through December 1947*

Types	Distribution, Percentage	Number of Operations
1. Total	100.0	91,512
2. Inhalation alone	10.0	9,172
3. Regional alone	74.1	67,810
4. Intravenous alone	4.8	4,421
5. Rectal alone	0.1	45
6. Specified combinations	11.0	10,064

TABLE 2.—*Anesthetics Administered by Inhalation in Hospitals of the Veterans Administration July Through December 1947*

Types	Distribution, Percentage	Number of Operations
1. Total	100.0	9,172
2. Drop ether	4.2	389
3. Nitrous oxide-oxygen and ether	46.2	4,231
4. Nitrous oxide and ether	11.0	1,006
5. Chloroform	1.0	90
6. Cyclopropane	22.5	2,068
7. Miscellaneous	15.1	1,388

TABLE 3.—*Regional Anesthetics Administered in Hospitals of the Veterans Administration July Through December 1947*

Types	Distribution, Percentage	Number of Operations
1. Total	100.0	67,810
2. Field block-infiltration	55.5	37,714
3. Brachial plexus block	1.1	737
4. Cervical block	0.4	250
5. Abdominal block	0.3	173
6. Sacral block	2.0	1,344
7. Subarachnoid (spinal)	33.3	22,570
8. Sympathetic block	2.5	1,701
9. Other regional blocks	4.9	3,321

SUMMARY AND CONCLUSIONS

The Veterans Administration recognizes the need for adequate anesthetic coverage. Attempt has been made to provide it. A teaching program has been instituted, and progress of it has been fostered, by efforts in many directions. Libraries in hospitals have been augmented by procurement of carefully selected books. Anesthetists have been encouraged to attend meetings and participate by presentation of papers. A number of papers have been published, and others are in the process of publication. Exhibits have been prepared, one of which was shown at the Annual Meeting of the American Medical Association in 1947. It was our intention to have another exhibit for this meeting, but allocation

TABLE 4.—*Specified Combinations of Anesthetics Administrated in Hospitals of the Veterans Administration July Through December 1947*

Types	Distribution, Percentage	Number of Operations
1. Total	100.0	10,064
2. Intravenous, inhalation	58.9	5,934
3. Spinal, intravenous	18.5	1,858
4. Spinal, inhalation	4.4	438
5. Regional (not spinal), intravenous	7.1	713
6. Regional (not spinal), inhalation	1.3	130
7. Other combinations	9.8	991

TABLE 5.—*Specific Supplemental Methods Employed in Hospitals of the Veterans Administration July Through December 1947*

Type	Number
1. Endotracheal intubations	6,155
2. Curare for relaxation	3,245
3. Blood transfusions (500 cc.)	42,186
4. Plasma transfusions (250 cc.)	17,104
5. Patients receiving oxygen therapy	13,406

of space could not be effected. Accomplishments have been real, but ideals have not yet been achieved. Problems needing solution exist. The paramount one is procurement of personnel. The cooperation of the profession at large will be needed if success is to be attained. It is hoped that cooperation will be extended on a continuing but accentuated basis.

My gratitude and thanks are extended to the many working within the Veterans Administration and those participating on a part time basis for their valuable suggestions and advice and for their generous cooperation and untiring faithful effort.

ANTICOAGULANT THERAPY OF CORONARY THROMBOSIS WITH MYOCARDIAL INFARCTION

IRVING S. WRIGHT, M.D.
CHARLES D. MARPLE, M.D.
and
DOROTHY FAHS BECK, Ph.D.
New York

The possibility of preventing the extension of coronary thromboses and the development of mural thrombi in the presence of myocardial infarction by the use of anticoagulants was suggested by Solandt, Nassim and Best [1] in 1938. These investigators were able to prevent the development of both coronary thrombi and of intracardiac mural thrombi under conditions in which such thrombi are usually produced experimentally in animals, by the use of the anticoagulant, heparin. Their observations were not applied to human beings on any significant scale because of the difficulties and the risk felt to be inherent in the use of heparin clinically. In the years 1945 and 1946, Wright,[2] Nichol and Page [3] and Peters, Guyther and Brambel [4] reported encouraging results following the use of the anticoagulant "dicumarol" in the treatment of coronary thrombosis with myocardial infarction in human beings. These reports were preliminary in nature, since only small numbers of cases were reported. However, the uniformly favorable results appeared to justify a more extensive study of the use of anticoagulants in the treatment of coronary thrombosis.

Accordingly, in the spring of 1946, the Board of Directors of the American Heart Association authorized the formation of the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction. This committee is composed of internists with special interest in cardiovascular diseases associated with the sixteen hospitals which have contributed cases to this study. Workers in several additional institutions have participated in an advisory or consulting capacity. The participating hospitals and the responsible investigators, the consultants and the staff from the central laboratory are listed in table 1.

Each investigator has been assisted by a team of residents, fellows and associates from his staff. Full credit must be accorded each of these workers, whose wholehearted cooperation has been indispensable to the success of this study. One thousand cases of coronary occlusion and myocardial infarction have been studied under the conditions of this investigation.

PLAN OF THE STUDY

Slightly fewer than one half of the 1,000 patients have been treated by conventional methods alone. The others have had anticoagulant therapy in addition to conventional treatment. A record of each case has been prepared in detail on master forms by the responsible investigator and his associates and forwarded to the central office of the committee at the New York Hospital. The master forms are being subjected to intensive statistical analysis, and a definitive report on the 1,000 cases will be prepared as promptly as the analysis will permit. The present report includes data obtained from analysis of the first 800 cases reported to the central laboratory. Although it is possible that the addition of the last 200 cases, and other later revisions, may change the figures somewhat, it is unlikely that the conclusions will be altered significantly, since the relationship of the control and treated groups as to deaths and thromboembolic complications has remained relatively stable as the sample has increased in size.

Three hundred and sixty-eight patients admitted to the participating services on even days received conventional therapy and constitute "the control group." Four hundred and thirty-two patients admitted on odd days received anticoagulants in addition to conventional therapy and constitute "the treated group."

The principles used as guides in the administration of "dicumarol" and heparin were as follows:

(*a*) Heparin may be given for the first forty-eight hours or more if desired.

(*b*) Prothrombin determinations are to be done each day, and no "dicumarol" should ever be ordered unless the morning prothrombin report is available.

(*c*) "Dicumarol" in the amount of 200 to 300 mg. daily should be given until the prothrombin time is 30 seconds.

(*d*) "Dicumarol" in the amount of 50 to 100 mg. daily should be given if the prothrombin time is between 30 and 35 seconds.

(*e*) "Dicumarol" is withheld if the prothrombin time is 35 seconds or more. Then, no drug is given until the prothrombin time is again down to 30 seconds or less, after which the drug is again given cautiously in 100 mg. doses.

(*f*) The Link-Shapiro technic, with undiluted whole plasma, or the Quick method is to be used for determining the prothrombin clotting time, and it is suggested that the Link-Shapiro method with 12.5 per cent diluted plasma be employed as an additional check or safeguard. All prothrombin times are given in terms of the Link-Shapiro (undiluted) method.

(*g*) Unless contraindications arise, the "dicumarol" therapy is to be continued in the chosen cases over a minimum period of thirty days, preferably thirty days after the last thromboembolic episode.

(*h*) In instances of hemorrhagic manifestations, the use of synthetic vitamin K preparations, in doses of 60 to 75 mg., and transfusions of fresh whole blood (may be citrated) are recommended.[5]

A comparison of the patients in the "control" group with those in the "treated" group shows a striking similarity in regards to age, history of previous infarction and estimated severity of the present attack, as shown in table 2. The average age in the control group was 60 years and that in the treated group 59 years. The average age in the control group of male patients was 58.9 years and that in the treated group 57.2 years. For the female patients the average age in the control

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Published simultaneously in the *American Heart Journal*.

This study has been supported by grants from the United States Public Health Service.

Progress report on the statistical analysis of the first 800 cases studied by the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction, American Heart Association.

Read before the Joint Meeting of the Section on Internal Medicine and the Section on Experimental Medicine and Therapeutics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

1. Solandt, D. Y., and Best, C. H.: Heparin and Coronary Thrombosis in Experimental Animals, Lancet **2**: 130, 1938. Solandt, D. Y.; Nassim, R., and Best, C. H.: Production and Prevention of Cardiac Mural Thrombosis in Dogs, Lancet **2**: 392, 1939.

2. (*a*) Wright, I. S.: Experiences with Dicumarol in the Treatment of Coronary Thrombosis, Proc. Am. Federation Clin. Research **2**: 101, 1945; (*b*) Experiences with Dicumarol (3,3' Methylenebis-[4-Hydroxycoumarin]) in the Treatment of Coronary Thrombosis with Myocardial Infarction, Am. Heart J. **32**: 20, 1946.

3. Nichol, E. S., and Page, S. W., Jr.: Dicumarol Therapy in Acute Coronary Thrombosis: Results in Fifty Attacks, J. Florida M. A. **32**: 365, 1946.

4. Peters, H. R.; Guyther, J. R., and Brambel, C. E.: Dicumarol in Acute Coronary Thrombosis, J. A. M. A. **130**: 398 (Feb. 16) 1946.

5. From the instructions issued to each participating team (slightly modified).

group was 64.1 years and in the treated group 64.6 years. In this series of 800 cases, the average for female patients was approximately 6.4 years more than that for the male patients.

In analyzing the two groups for a history of one or more previous infarctions, it was observed that 24 per cent of the control group and 22 per cent of the treated group had had one or more previous infarctions.

An estimate of the severity of the attack was made for each patient at the time of diagnosis and recorded as mild, moderate or severe. Twenty-three per cent of the control group and 30 per cent of the treated group were classified as having severe attacks. Although this classification is admittedly arbitrary, the results suggest that the treated group contains a somewhat greater proportion of severely ill patients. The control and treated groups were also closely similar when the medical histories of cardiovascular diseases and the locations of their original infarcts were compared.

Eighty-eight per cent of patients in the control group received no anticoagulant, but 12 per cent did receive some anticoagulant therapy, often for short periods only. Anticoagulants were administered to patients in the control group following the development of a thromboembolic complication in 3 cases out of 5 and in the remaining cases because of pressure on the part of the family or a private physician [6] or miscellaneous reasons. Of the treated group, 81 per cent received "dicumarol" only, while 14 per cent received "dicumarol" and some heparin. In 3 per cent of the "treated" patients no anticoagulants were given because of concurrent renal or hepatic disease or because of hemorrhagic conditions, and 2 per cent received no anticoagulant because of miscellaneous errors.

In the computation of the rates on which all of the charts are based, small and conservative corrections were made in order to simplify the presentation. In the control group the rates are corrected for exceptions to the "no anticoagulant" rule. Rates as shown are those which it is estimated would have occurred if no subject in the control group had received any anticoagulant. They differ only slightly from the data as actually reported and are believed to present a truer picture of rates without anticoagulants. In the treated group the rates are corrected for erroneous omissions of anticoagulants. There is evidence that with more intensive and inclusive anticoagulant therapy, the rates for death and complications in the treated group would have been lower than those shown. No correction was made for those patients from whom anticoagulants were withheld because of specific contraindications. These omissions are considered to be disadvantages inherent in this type of treatment.[7] In both groups all rates for thromboembolic complications and hemorrhagic manifestations, as stated in this interim report, refer to conditions diagnosed clinically. Statistics based on postmortem observations were not yet available at the time of writing, but were being analyzed.

Figure 1 illustrates the contrast between the death rates in the control group and in the group that received anticoagulant therapy. Twenty-four per cent of the control patients died, whereas 15 per cent of the treated patients died. Thus, somewhat more than one third of the subjects who would have died without anticoagulant therapy survived the specific attack under consid-

TABLE 1.—*Participating Hospitals and Responsible Investigators, Consultants and Staff from Central Laboratory*

Participating Hospitals and Investigators	
Hospitals	**Investigators**
Bellevue Hospital, New York	John E. Deitrick, M.D.
Beth Israel Hospital, Boston	Herrman L. Blumgart, M.D.
Bronx Veterans Hospital	Louis A. Kapp, M.D.
Cincinnati General Hospital	John McGuire, M.D. Helen Glueck, M.D.
Cleveland City Hospital	Roy W. Scott, M.D.
Henry Ford Hospital, Detroit	F. Janney Smith, M.D.
Jackson Memorial Hospital, Miami	E. Sterling Nichol, M.D.
Lakeside Hospital, Cleveland	Joseph Hayman Jr., M.D. Harold Feil, M.D.
Massachusetts General Hospital	Howard B. Sprague, M.D.
Michael Reese Hospital, Chicago	Louis N. Katz, M.D.
Mount Zion Hospital, San Francisco	John J. Sampson, M.D.
Pennsylvania Hospital, Philadelphia	Joseph B. Vander Veer, M.D.
Peter Bent Brigham Hospital	Samuel A. Levine, M.D.
Rhode Island Hospital, Providence	Frank B. Cutts, M.D.
San Francisco County Hospital	John J. Sampson, M.D.
The New York Hospital	Irving S. Wright, M.D. Harold J. Stewart, M.D.
Consultants	
Ralph S. Overman, Ph.D.	Nelson W. Barker, M.D.
Charles E. Brambel, Ph.D.	Grace Goldsmith, M.D.
Central Laboratory	
Irving S. Wright, M.D., Chairman of Study Charles D. Marple, M.D., Coordinator Dorothy F. Beck, Ph.D., Statistician	

TABLE 2.—*Composition of Sample* *

Item Compared	Control Group (Even Days)	Treated Group (Odd Days)
Number of cases	368	432
Average age	60 yr.	59 yr.
Proportion male	77%	76%
One or more previous infarctions	24%	22%
Illness "severe" at onset	23%	30%
Anticoagulant therapy received (exceptions as noted)	88% no anticoagulants; 12% some anticoagulants (primarily after complications)	81% "dicumarol" without heparin; 14% "dicumarol" plus some heparin; 3% no anticoagulants because of renal or hepatic disease or hemorrhage; 2% no anticoagulants because of miscellaneous errors

* Total group: 800 patients with coronary occlusion with myocardial infarction surviving the first day of hospitalization.

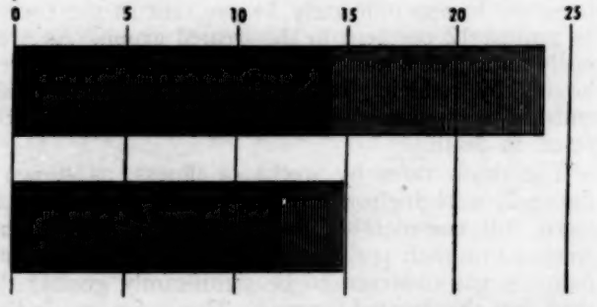


Fig. 1.—Percentage of deaths in the control and treated groups studied, indicated by the horizontal row of figures at the top. The upper bar shows results in the control group (24 per cent), and the lower bar in the treated group (14.9 per cent), one-third fewer deaths than in the control group. The hatched areas indicate deaths after one or more thromboembolic complications, and the darkened areas indicate deaths not preceded by a thromboembolic complication.

6. This factor became intensified as the study progressed.

7. These corrections were made by assuming that if anticoagulants had been completely withheld from all control patients receiving anticoagulants they would have experienced at least as many further complications and would have died at least at the same rate as did control patients of comparable age who received no anticoagulants at any time in approximately comparable circumstances. If actual rates for subgroups among these patients for whom exceptions were made did not already exceed these estimates, the estimates were substituted for the actual data for these particular subgroups. An appropriate modification of this correction procedure was applied in the case of the treated group and for hemorrhagic manifestations in both groups. The resulting corrected figures are portrayed graphically and referred to in the text without reference to the corrections or to the exceptions in treatment. The corrections for exceptions proved to be small and sometimes were completely without effect on the rates. They do not alter at any point the basic differences between the groups from which conclusions are drawn.

eration when anticoagulants were given. This difference is statistically significant.[8] Further examination indicates that the greatest improvement was achieved in patients who had suffered one or more thromboembolic complications prior to death. Such deaths occurred in roughly 10 per cent of the control group, but in only

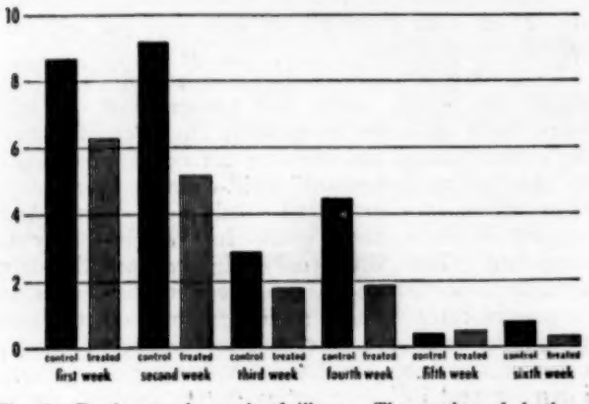


Fig. 2.—Death rates by week of illness. The number of deaths per hundred survivors from the previous week is shown in the vertical column of figures on the left.

3 per cent of the treated group. Death not preceded by a clinically recognized thromboembolic complication occurred in approximately 14 per cent in the controls as against 12 per cent in the treated group. As previously anticipated, anticoagulants reduced the death rate largely by reducing the incidence of those thromboembolic complications which, directly or indirectly, result in death.

The death rates by weeks of illness, as shown in figure 2, were highest during the first two weeks, but were still considerable during the third and fourth week. For each period the death rate for the control patients was observed to be significantly greater than that for the treated group. These figures indicate that anticoagulant therapy, if not used before, should be begun even as late as the second or third week after a myocardial infarction has occurred—or later if complications have developed—and, secondly, that, to give

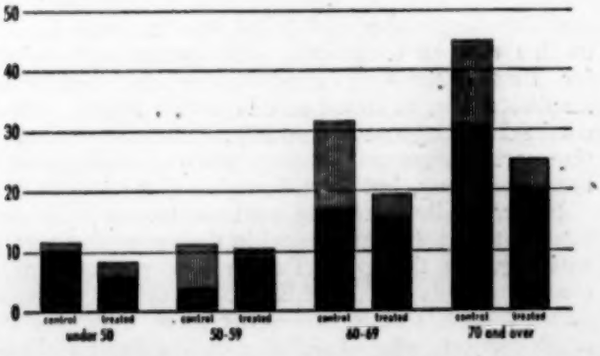


Fig. 3.—Death rates by age groups. The percentage of patients who died is shown in the vertical column of figures. The darkened areas indicate deaths not preceded by a thromboembolic complication, and the hatched areas indicate deaths after one or more thromboembolic complications.

maximal protection, anticoagulant treatment should be continued for at least four weeks after the last thromboembolic episode.

8. The term "statistically significant" is used throughout the text to mean that the chances that two random samples from the same population would yield on the basis of chance alone differences as great as those observed and in the same direction are less than 1 in 100. In most instances the chances of obtaining these differences in two samples from the same universe are in fact much less than 1 in 100—in the case of thromboembolic complications, less than 1 in a 1,000.

Figure 3 presents the death rates by major age groups. The greatest benefits in the reduction of the mortality rate are in patients 60 years or older. These statistics show that the therapeutic effect of anticoagulants is sufficiently important that they should be used in the older age groups. Hemorrhagic complications have been so few and so mild throughout the entire study and the benefits of treatment of the older age group are so pronounced that we do not hesitate to prescribe anticoagulants for older patients. It should be recognized, however, that older patients have a higher incidence of unrelated complications and that careful consideration of such factors is mandatory. While the crude death rates for patients under 59 in both the treated and the control group did not show a significant difference, it will be seen in figure 6 that the incidence of thromboembolic complications is high in these age groups and that the treated patients show a much lower incidence of thromboembolic complications. Such thromboembolic complications may not only be serious incidents in themselves, but they may result in such serious permanent disabilities as hemiplegia (following cerebral emboli), chronic venous insufficiency (following thrombophlebitis) or residual myocardial damage (following repeated myocardial infarction).

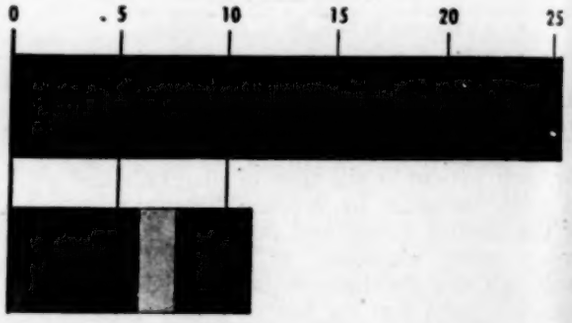


Fig. 4.—Percentage of cases in which one or more thromboembolic complications developed and the time when the complications occurred. Cases were classified by the status of anticoagulant therapy at the time of the first complication. The upper bar is of the control group and the lower bar of the treated group. The horizontal row of figures at the top indicates the percentage. The checked areas indicate complications occurring after the third day of anticoagulant therapy; the dotted areas indicate complications occurring during the first three days of anticoagulant therapy, and the darkened areas indicate complications occurring while the patient was not receiving anticoagulants.

Figure 4 shows the percentage of cases in which one or more thromboembolic complications developed. In 25 per cent of the control patients, in contrast to only 11 per cent of the treated patients, at least one such complication developed. This difference is statistically significant. However, of these treated patients, 3.5 per cent presented their first complication before they had received anticoagulants[9] and 1.5 per cent presented their first thromboembolic complication during the first three days of anticoagulant therapy, before "dicumarol" is ordinarily fully effective. Thus 5 per cent presented thromboembolic complications when anticoagulant therapy could not have been fully effective and only 6 per cent presented thromboembolic complications while they were actually under the full effect of anticoagulant therapy.

The number of thromboembolic complications per hundred cases is presented in figure 5. Among each hundred cases in the control group, thirty-six thromboembolic complications were diagnosed clinically.

9. Included in this group are those who never received anticoagulants because of contraindications.

whereas among each hundred cases in the treated group, only fourteen thromboembolic complications were so diagnosed. In other words, the patients in the "treated group" experienced slightly more than one third as many thromboembolic complications as did the control group, a contrast that is again highly significant statistically. This contrast is further emphasized by the following facts. It is noted that five thromboembolic complications per hundred cases developed while the patients were not receiving anticoagulant therapy and two and five-tenths thromboembolic complications per hundred cases developed during the first three days of anticoagulant therapy when "dicumarol" is not considered efficacious. Actually, then, only six and five-tenths thromboembolic complications per hundred treated patients occurred in patients who were receiving the full therapeutic effect of anticoagulant therapy. This figure includes complications in some patients whom we would not now consider to have been having adequate treatment at the time the complication occurred. Autopsies were conducted on 48 per cent of the patients who died among the 800. The autopsy records for these cases are being studied intensively and will yield further light on the effects of anticoagulant therapy on thromboembolic complications.

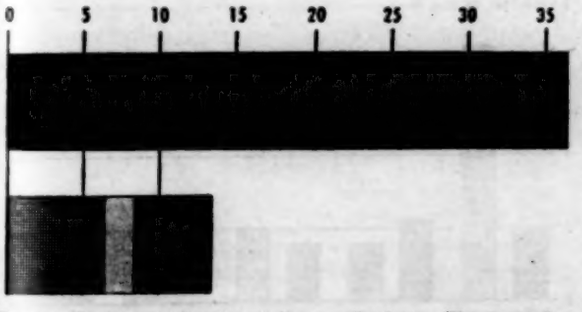


Fig. 5.—Number of thromboembolic complications. The upper bar is of the control group and the lower bar of the treated group. The horizontal row of figures at the top indicates the number of complications per hundred cases. The dotted area indicates the complications occurring during the first three days of anticoagulant therapy; the checked areas indicate complications occurring after the third day of anticoagulant therapy, and the darkened areas indicate complications occurring while the patient was not receiving anticoagulants.

The highest incidence of thromboembolic complications among the control cases occurred in the age group between 50 and 59 (fig. 6) in distinct contrast to the death rate by age groups (fig. 3). The explanation for this contrast may be that, while the younger patients suffer numerous thromboembolic complications and while some of these complications result in serious damage, the younger patients are able to survive them. Thus a person under 60 may have three or four thromboembolic complications without a fatal episode, whereas an older patient may succumb to the initial attack and hence not have an opportunity of experiencing repeated thromboembolic attacks. This chart clearly indicates the value of anticoagulant therapy in preventing thromboembolic complications in all age groups. Within the treated group, a distinction is made between patients actually receiving anticoagulants and those who were not receiving anticoagulants at the time of their thromboembolic complications. This further emphasizes the effects of anticoagulant therapy.

In figure 7 the rate of thromboembolic complications by week of illness is considered. The advantage in using anticoagulants is clearly demonstrated for each of the first four weeks of the illness. As is the case with deaths, the incidence of thromboembolic complications is highest in the second week, but is significant throughout the first four weeks. This, again, clearly indicates the importance of beginning anticoagulant therapy even as late as the second or third week following a myocardial infarction. Since it is impossible to predict from the condition of the patient during the first week whether thromboembolic complications will develop during subsequent weeks and whether the patient will die from them, it is important to give anticoagulants to all patients with coronary occlusion and myocardial infarction unless specific contraindications exist.

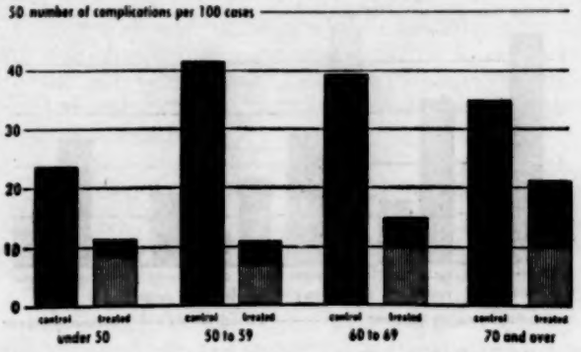


Fig. 6.—Number of thromboembolic complications by age groups. The hatched areas indicate the complications occurring during anticoagulant therapy, and the darkened areas indicate the complications occurring while the patient was not receiving anticoagulants.

Figure 8 indicates the types and locations of thromboembolic complications as they were encountered and the effects of anticoagulant therapy in each group. Under the classification of secondary myocardial infarctions, there was evidence of extension of the original thrombosis in 9 cases per hundred in the controls, as against 2 cases per hundred in treated patients. There was infarction of new areas in the myocardium in 6.5 cases per hundred in the controls, as against 2.5 among treated patients. Pulmonary emboli occurred in 9.4 cases per hundred among the controls, as against 5.2 cases among the treated subjects. Moreover, half of the so-called treated patients were not actually receiving anticoagulants at the time they suffered their pulmonary embolus. Cerebral emboli occurred in 3.4 per hundred of the control patients, as against 1.4 per hundred among the treated patients. Peripheral emboli developed in 3 per hundred of the control group, as

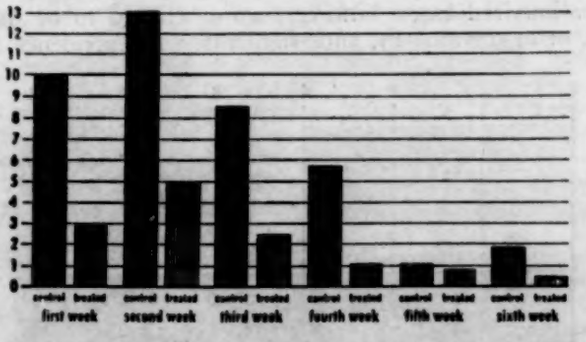


Fig. 7.—Number of thromboembolic complications by week of illness. The vertical column of figures shows the number of complications per hundred survivors from the previous week. The hatched areas indicate the complications occurring during anticoagulant therapy, and the darkened areas indicate the complications occurring while the patient was not receiving anticoagulants.

against 1 per hundred of the treated group, and venous thromboses occurred in 5 per hundred of the control patients as against less than 2 per hundred of the patients. Hence it will be seen that at every site and with every type of complication, those receiving anticoagulant treatment in addition to conventional treatment had a distinctly better chance of escaping thromboembolic complications than those who received the conventional forms of treatment only.

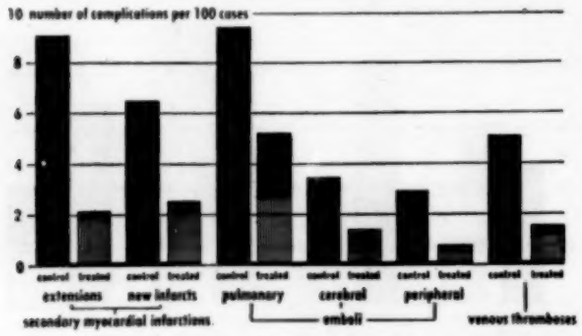


Fig. 8.—Types and locations of thromboembolic complications. The hatched areas indicate the complications occurring during anticoagulant therapy, and the darkened areas indicate the complications occurring while the patient was not receiving anticoagulants.

The hazard of hemorrhagic manifestations resulting from anticoagulant therapy has been carefull reviewed (fig. 9). It should be noted that hemorrhagic manifestations unrelated to anticoagulants numbered 6 per hundred in the control group. This is in comparison to a rate of slightly more than 12 per hundred cases among those patients who were classified as "odd day," or "treated," patients. It should be noted, however, that of these complications in the latter group, two in twelve developed in patients who were not receiving anticoagulants when their hemorrhages occurred. In an additional three in twelve complications the hemorrhages were known to be due to causes other than anticoagulant therapy and not aggravated by that treatment. The total hemorrhagic manifestations in the treated group which are known to have been due to causes other than anticoagulants approaches that observed in the control group. An additional seven complications per hundred cases, however, were believed to be due to, or aggravated by, anticoagulants. The incidence of

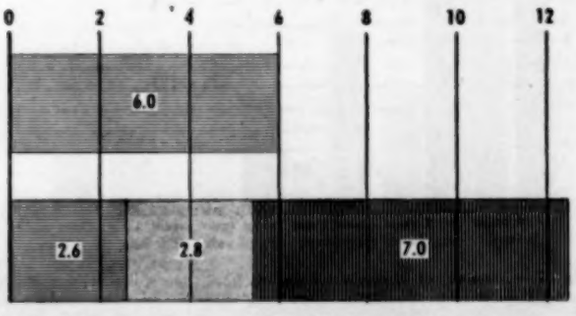


Fig. 9.—Relation of hemorrhagic manifestations to anticoagulants. The upper bar is of the control group and the lower bar of the treated group. The hemorrhagic manifestations were mild in 50 per cent of the cases. The horizontal line of figures at the top shows the number of hemorrhagic manifestations per hundred cases. The areas with vertical hatching indicate that the hemorrhagic manifestations were due to or aggravated by anticoagulant therapy; the dotted areas indicate occurrence while the patient was receiving anticoagulants but due to other causes, and the areas with horizontal hatching show occurrence when no anticoagulants were being given.

severe hemorrhages resulting from anticoagulant therapy was extremely low. Of the thirty hemorrhages clinically observed, fifteen, or 50 per cent, were mild in severity, fourteen, or 47 per cent, were moderately severe and only one (3 per cent) was severe The postmortem observations on hemorrhagic phenomena are not yet ready for presentation, but those examined to the date of reporting presented no alarming picture of the hemorrhagic risks in anticoagulant therapy under proper controls. Blumgart and his co-workers,[10] working with dogs whose coronary arteries had been ligated, observed that animals treated with "dicumarol" (in some instances to the point where prothrombin times of 132 seconds resulted) showed no increase of hemorrhages in the myocardium, endocardium or pericardium as compared with animals that did not receive "dicumarol."

The sources of bleeding in relation to anticoagulants are demonstrated in figure 10. There is a definite incidence of hemorrhages among the control group in each of the categories except that for epistaxis. Hemorrhages due to causes other than anticoagulant therapy also occurred in three of the categories in the treated group. There will be noted that hemorrhages occurred more frequently in the treated group in all categories except that of hemoptysis. The explanation for the greater incidence of hemoptysis in control patients is that pulmonary infarction is much commoner among these patients than among the treated patients.

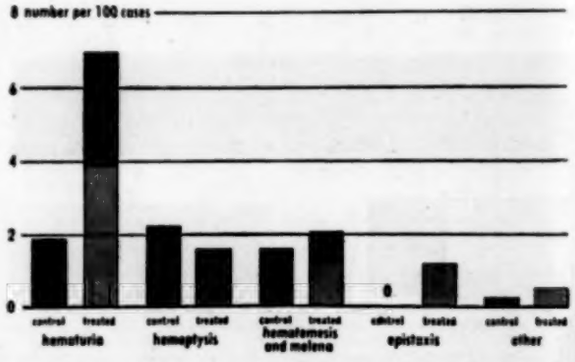


Fig. 10.—Sources of bleeding in hemorrhagic manifestations. Fifty per cent of the manifestations were mild. The areas of diagonal hatching indicate gross hemorrhage; the areas of vertical hatching indicate hemorrhagic manifestations due to or aggravated by anticoagulant therapy, and the darkened areas indicate hemorrhagic manifestations due to other causes.

The records of patients who received anticoagulant therapy and yet presented thromboembolic complications or died are being subjected to analysis in the central laboratory. It appears, on the basis of present experience, that a considerable proportion of the failures occurred because the prothrombin time was not adequately prolonged. While there is at present a question as to what constitutes the minimal effective therapeutic prothrombin time, it is our experience that a safe and effective therapeutic range is between 30 and 50 seconds, by Link-Shapiro modification of Quick's one stage method. This range, as interpreted in our laboratory, would approximate a prothrombin activity of between 20 and 10 per cent. For heparin, the clotting time should be approximately three times normal. Although statistical evidence as to the relative incidence of thromboembolic complications at various prothrombin times (i. e., at various levels of reduced prothrombin activity) is not yet available, a review of those cases in which thromboembolic complications occurred during the administration of "dicumarol" reveals that, of the

10. Blumgart, H. L.; Freedberg, A. S.; Zoll, P. M.; Lewis, H. D., and Wessler, S.: The Effect of Dicumarol on the Heart in Experimental Acute Coronary Occlusion, Tr. A. Am. Physicians **60**: 228, 1947.

38 complications [11] occurring under these conditions, only 4 occurred in patients whose prothrombin time is known to have been maintained at 30 seconds or more for at least the three days before the complication appeared. Further analyses regarding this factor will be recorded in forthcoming publications. It is not sufficient to state that a patient has received coagulants. Key questions which must be answered are: how much, how long, what levels of effectiveness were obtained and how consistently were these maintained? With this information, it should usually be possible to determine whether a failure was caused by drug or was the responsibility of those administering it.

SUMMARY

This report summarizes the results obtained by a preliminary statistical analysis of the first 800 cases studied by the Committee for the Evaluation of Coagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction. In the analysis, the incidence of deaths and of both thromboembolic and hemorrhagic complications has been compared in a "control" series of patients treated by conventional methods alone and in a series of "treated" patients who received anticoagulants ("dicumarol," heparin, or both) in addition to conventional treatment. The composition of the two groups was observed to be essentially the same.

The rates of deaths and the number of thromboembolic complications per hundred cases have been calculated for the control and treated groups as a whole, by week of illness, by age of patient and by type and location of the specific thromboembolic complication. The percentage of cases in which one or more complications developed has also been analyzed. The results in every category studied indicate that the use of anticoagulants improves strikingly the outlook of the patient suffering a coronary occlusion with myocardial infarction. The incidence of hemorrhagic manifestations was also analyzed. It was observed that about six minor or moderate hemorrhagic manifestations per hundred cases occur in patients not receiving anticoagulants, but that this incidence is about six per hundred higher in patients receiving anticoagulants. However, only one serious hemorrhage was observed clinically in the entire 800 cases.

Although the minimum prolongation of the prothrombin time necessary to obtain a therapeutic effect from "dicumarol" in each patient has not been established, it is our experience that a range of from 30 to 50 seconds, as measured by the Link-Shapiro modification of the Quick one stage technic, produces a safe and an effective therapeutic level. This range of prothrombin times approximates a decrease in prothrombin activity to between 20 and 10 per cent, as determined in our laboratory. In using heparin we attempt to prolong the clotting time of whole blood to approximately three times the normal value by the Lee-White technic. In only 4 cases out of the entire series did thromboembolic complications occur when the prothrombin time had been maintained at a level of 30 seconds or more for at least three days prior to the occurrence of the complication.

CONCLUSIONS

1. On the basis of data compiled from 800 cases of coronary occlusion with myocardial infarction, it is concluded that patients treated with anticoagulants in addition to the conventional forms of treatment present a death rate and incidence of thromboembolic complications during the first six weeks period following an attack significantly lower than those experienced by patients treated solely by conventional methods.

2. Anticoagulant therapy should be used in all cases of coronary thrombosis with myocardial infarction unless a definite contraindication exists.

3. In the absence of hemorrhagic conditions the hazards from hemorrhage are not sufficient to contraindicate the use of anticoagulants in coronary occlusion, provided that there are facilities for adequate laboratory and clinical control.

11. Complications for which the date is not accurately known and those occurring on days for which no prothrombin time is available are excluded from this total, but complications occurring in control cases during anticoagulant therapy are included.

ABSTRACT OF DISCUSSION

DR. BERNARD DREXLER, Rochester, N. Y.: What is considered an adequate laboratory or other method of controlling the use of heparin in these cases? We know that the prothrombin time is a fairly decent method of control or knowing when the patient is getting enough "dicumarol," but how about the heparin?

DR. WALTER VEST, Huntington, W. Va.: Would Dr. Marple give a sample method of the use of the anticoagulants?

DR. CHARLES D. MARPLE, New York: Regarding the laboratory control of heparin administration, satisfactory results are attained clinically if the clotting time is prolonged to between two and three times the normal. Determining clotting times by the Lee-White method, by which any time up to 10 minutes is normal, the clotting time should be maintained between 30 to 45 minutes with heparin. About the plan for administering "dicumarol," we emphasize that the stated values are obtained by the Link-Shapiro modification of the one stage method, with the use of a commercial thromboplastin obtained from rabbit lung. Normal values for whole plasma are from 15 to 17 seconds. When talking of prothrombin tests, the results must be so qualified, since, if one uses a different method, a variation in technic or a different thromboplastin, the prothrombin times obtained will differ, perhaps considerably. When a diagnosis of coronary occlusion with myocardial infarction is made, the anticogulant should be administered immediately. If the diagnosis is disproved later, treatment with the drug is discontinued. If the initial prothrombin time is normal, or below, the patient should be given 300 mg. of "dicumarol." On the second day and thereafter the dose of "dicumarol" is estimated according to the prothrombin time on the particular day. "Dicumarol" should never be administered until a test of prothrombin time has been done and results reported on that day. If the prothrombin time is less than 30 seconds, 200 mg. of "dicumarol" should be given each day until the time has reached 30 seconds. From 30 to 35 seconds, 50 to 100 mg. should be administered, and when the prothrombin time is above 35 seconds, "dicumarol" should not be given. If the prothrombin time does not exceed 50 or 60 seconds, nothing should be done; "dicumarol" should not be given until the prothrombin time falls again. When the prothrombin time approaches or reaches 30 seconds on the down grade, "dicumarol," 100 to 200 mg., should again be given if the time is below 30 seconds and 50 or 100 mg. if the time is between 30 and 35 seconds.

The patient's prothrombin time should be maintained between 30 and 50 seconds and "dicumarol" therapy continued for thirty days from the last thromboembolic complication. No 2 patients react alike, and a patient may react differently from day to day, particularly in the presence of congestive failure or hepatic or renal disease. If the prothrombin time exceeds 60 seconds, one should beware of hemorrhage. Vitamin K therapy is effective in the majority of cases in reducing the prothrombin time, and it is fairly effective in controlling hemorrhage, but it must be administered repeatedly in doses of 60 to 75 mg. intravenously every four hours.

In terms of percentage in our cases prothrombin times of 30 to 40 seconds represent a reduction of prothrombin activity to approximately 10 to 20 per cent of normal. We agree with Nelson Barker that one must reduce prothrombin activity to about 20 per cent of normal. If a different method is used, or a different thromboplastin, values in seconds will represent a somewhat different percentage than do values with our technic.

CANCER OF THE LARYNX

Five Year End Results in a Series of Patients Treated Between 1930 and 1942

CHEVALIER L. JACKSON, M.D.
JOHN V. BLADY, M.D.
CHARLES M. NORRIS, M.D.
and
WALTER H. MALONEY, M.D.
Philadelphia

Six hundred and twelve patients with cancer of the larynx were treated at the Temple University Hospital from 1930 to 1947 inclusive (table 1). Surgical treatment was used in 453 cases (laryngofissure or thyrotomy, a form of partial laryngectomy, in 209 and total laryngectomy in 244), and irradiation was used in 159 cases.

Five year end results can now be computed only on three hundred and seventy-one treatments given through December 1942. Of the 118 patients treated by laryngofissure, 102 were determinate. By determinate we mean that they did not die of other cause within five years of treatment and were traced. Prior to 1940 the laryngectomies done at the Temple University Hospital were done by others, and we include in the five year analysis only the 39 cases in which the operation was performed by us in the years 1940 to 1942 inclusive; of these, 35 were determinate. There was no operative mortality in this series. Of the 91 patients treated by irradiation, 83 were determinate.

TABLE 1.—*612 Cases of Carcinoma of the Larynx (1930-1947 Inc.)*

	Laryngofissure	Laryngectomy	Irradiation
1930	7	15	0
1931	5	10	1
1932	8	9	1
1933	14	5	4
1934	8	12	4
1935	6	12	8
1936	7	11	9
1937	14	12	9
1938	5	5	13
1939	12	22	7
1940	11	18	6
1941	12	11	19
1942	7	20	10
1943	14	17	11
1944	17	12	7
1945	15	17	13
1946	23	12	18
1947	22	24	19
Totals	209	244	159

In table 2 are shown the five year end results in the 206 determinate cases of cancer of the larynx without palpable nodes treated by us from 1930 to 1942 inclusive. Laryngofissure was done in 102 determinate cases, with a five year survival rate of 81 per cent. In the 35 determinate cases in which laryngectomy was done, a 66 per cent cure rate was obtained. The 69 patients without palpable nodes when first seen who were treated by irradiation showed a five year survival rate of 51 per cent. (Fourteen patients with palpable nodes were all treated by irradiation, but none survived five years; these cases are considered in computing the final five year survival rate.) The series in which treatment was by roentgen irradiation included both intrinsic and extrinsic cases. The five year survival rate of initial treatment among the 206 patients without palpable nodes treated surgically and by irradiation is 68 per cent.

From the Departments of Laryngology and Roentgen and Radium Therapy, Temple University Hospital, Philadelphia.
Read before the Section on Laryngology, Otology and Rhinology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

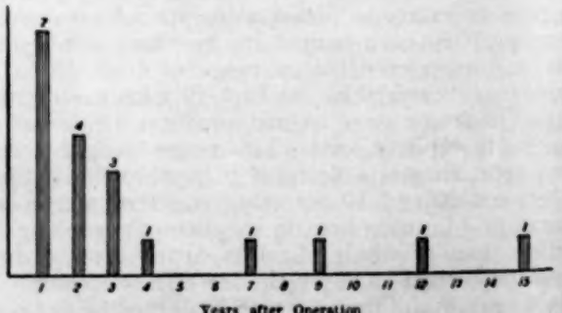
RECURRENCES

The interval of recurrence in the 19 cases in which it developed following laryngofissure is shown in the chart. It is interesting to note that 14 of the 19 recurrences (74 per cent) developed in the first three years and that 4 of the remaining 5 developed after five years (1 each in the seventh, ninth, twelfth and fifteenth year respectively). This tends to show that three year cure rates are not entirely valueless, and furthermore that five year cure rates are certainly not final. Of course, late recurrences always raise the question of whether we are dealing with a recurrence of the old tumor or with a new primary growth. We do not believe it possible to set any time as the period after which a tumor arising in the same region as a previous one is to be considered a new tumor and not a recurrence. A study of the location and histologic character of the original tumor compared with the location and histologic character of the supposed recurrence might shed some light on this problem.

TABLE 2.—*Five Year End Results in the 206 Determinate (Intrinsic and Extrinsic) Cases with No Metastasis When First Seen, 1930-1942*

	Determinate Cases	Recurrence and/or Metastasis in 5 Years	N. E. D. 5 Years	Percentage 5 Year Cures
Laryngofissure	102	19	83	81
Laryngectomy (1940-1942 inclusive)	35	12	23	66
Irradiation	69	23	35	51
Total	206	54	141	68

The methods and results of treatment of the recurrences after laryngofissure are shown in table 3. Three patients had second laryngofissures, but 1 of these later had a laryngectomy for a second recurrence, and has now been free of disease for five years. Of the 2 that had only second laryngofissures, both are free of disease, 1 for more than five years. Of 6 patients who had laryngectomies, 1 has been lost to follow-up, 1 is dead of disease and the remaining 4 are free of disease, 2 of them for more than five years. One patient had a laryngectomy, then roentgen irradiation, and, in addition, neck dissections with interstitial irradiation for bilateral cervical metastasis, but is now free of disease more than five years after the last treatment. Of the 7 determinate patients with recurrence after laryngofissure treated by irradiation, 4 are dead of disease and 3 are well, 2 for more than five years. Summarizing,



Recurrences (19 cases) in a series of 102 laryngofissures.

of the 19 patients with recurrence after laryngofissure, 17 were determinate, and of these 17, 6 are dead of disease and 11 are well, 7 of them for more than five years after the last treatment. Subtracting the 4 patients still free of disease after treatment of recurrence but treated less than five years ago, we can consider 13 determinate, and the five year recurrence salvage rate 54 per cent (7 out of 13). Of course, some of the 4 patients treated less than five years ago will undoubtedly reach five years without further recurrence.

Recurrence or metastasis developed in 12 of the 35 determinate cases in which laryngectomy was done by us. Recurrence alone developed in 3 cases, metastasis without local recurrence in 8, and both recurrence and metastasis in 1. Only 1 patient in this group has survived more than five years. He was the patient already mentioned, who had been first treated by laryngofissure, then had local recurrence for which a total laryngectomy was done, and subsequently had bilateral cervical metastasis. He is now free of disease six years after treatment of the metastasis.

TABLE 3.—*Treatment of Recurrences Following Laryngofissure*

	Total Cases	Determinate Cases	D O D	N.E.D. 1-5 Years	N.E.D. Over 5 Years
2d LF *	2	2	0	1	1
2d LF and LG †	1	1	0	0	1
LG	6	5	1	2	2
LG, roentgen ray, ND ‡ and radon	1	1	0	0	1
Roentgen ray or radium	8	7	4	1	2
Untreated	1	1	1	0	0
Totals	19	17	6	4	7

Five year survival rate (7/13) = 54%

* LF = laryngofissure. † LG = laryngectomy. ‡ ND = neck dissection.

TABLE 4.—*Treatment of Recurrences After Irradiation*

	Determinate Cases	N.E.D. Over 5 Years
Second course of roentgen rays	17	5
Laryngectomy	3	2
Total cases treated	20	7

Five year survival rate (7/20) = 35%

In 23 of the 69 patients treated by irradiation recurrence developed, and of 17 of these who received a second course of irradiation, 5 are free of disease for more than five years (table 4). Laryngectomy was done in 3 patients, and 2 of these have been without disease for five years following operation. Three were not treated. Thus the salvage rate for treated recurrences after irradiation was 35 per cent (7 out of 20).

METASTASES

In this series no patient with cancer of the larynx having cervical metastases when first seen was treated by laryngofissure or laryngectomy. Of the 83 determinate patients treated by roentgen irradiation, however, 14 had metastases. Thirteen patients received roentgen radiation to the primary lesion and the metastases. There were no five year survivals in this group. One patient was treated by a radical neck dissection with implantation of radon, and remained well for four and one-half years, after which time a lesion in the lung developed which was thought to be a second primary. He died of generalized metastases fifty-nine months after treatment of the primary lesion and cervical metastases.

As shown in table 5, a total of 33 patients had metastases after receiving treatment to the primary lesion. Of this group, 29 patients received treatment for the metastases. Seven of these patients survived five years, giving a five year survival rate of 21 per cent. Only 1 patient of 13 treated by roentgen irradiation alone and 1 patient of 3 treated by roentgen and radon irradiation survived five years. Five of 9 patients treated by partial or radical neck dissection in combination with radon and/or roentgen irradiation survived five years. In this series, there were no patients treated by surgery alone.

TABLE 5.—*Treatment of Metastases Developing After Treatment of Primary Tumor*

	Total Cases	D O D *	D O C †	N.E.D. 5 Years
Roentgen ray	13	12	0	1
Roentgen ray and radon	3	2	0	1
Radon alone	4	4	0	0
Surgery, roentgen ray, radon	9	3	1	5
No treatment	4	4	0	0
Totals	33	25	1	7

Five year survival rate (7/33) = 21%

* D O D = dead of disease.
† D O C = dead of other causes without evidence of recurrence or metastasis.

Since 1940, the treatment of cervical metastases from cancer of the larynx at the Temple University Hospital has been as follows: For patients presenting metastases on admission, roentgen treatment is generally employed for treatment of the primary lesion in the larynx; if possible, the metastases are incorporated in the same portal. After the irradiation, either before severe radiation epithelitis develops or after it has completely healed, the metastases are surgically exposed and radon is implanted in a tissue dosage of 5,000 to 10,000 gamma roentgens, or a neck dissection with or without implantation of radon is performed. More recently, we have treated a number of patients by radical neck dissection followed by external radiation to the primary lesion. In a few cases laryngectomy combined with neck dissection has been done. The results in these cases, however, are not suitable for evaluation, because the treatment was given less than five years ago. For metastases occurring after the primary disease has been controlled, a radical neck dissection is performed, and radon is implanted when there is perinodal infiltration.

TABLE 6.—*Five Year End Results Including Recurrence Salvage in Cases Without Palpable Metastases When First Seen*

	Determinate Cases	N.E.D.* 5 Years Following Primary Treatment	Recurrence and/or Metastasis	N.E.D. 5 Year Following Further Treatment	Total N.E.D. 5 Year Survival Including Treatment of Recurrences and Metastases
Laryngofissure	102	83 (81%)	19	7	90 (88%)
Laryngectomy	31†	20 (65%)	11	0	20 (65%)
Roentgen ray	69	35 (51%)	23	9	44 (64%)
Total	202	138 (68%)	53	16	154 (76%)

* N.E.D. = 5 year survival rate (154/202) = 76%.
† Total cases treated by laryngectomy (1940-1942) minus 3 treated initially by laryngofissure and one treated initially by roentgen ray.

In table 6 are shown the final end results, including the ultimate five year salvage of recurrence in addition to the cure rate obtained by each respective method. It will be noted that the salvage of 7 of the patients

in whom recurrence developed after laryngofissure raises the final survival rate of the group to 88 per cent. None of the 11 patients with recurrence after laryngectomy as a primary method of treatment survived five years, but the salvage of 9 of the recurrences and metastases after initial treatment by roentgen irradiation raises the final survival rate of that group to 64 per cent. The five year survival rate for cancer of the larynx without metastasis when first seen, in the 202 patients included in this series, therefore, is 76 per cent. Including the 14 patients who had metastasis when first seen who all were treated by roentgen irradiation and none of whom survived five years, the over-all five year survival rate among the 216 determinate patients with cancer of the larynx (intrinsic and extrinsic) treated by us from 1930 to 1942, inclusive, is 72 per cent.

SUMMARY AND CONCLUSIONS

Six hundred and twelve patients were treated at the Temple University Hospital in the years 1930 to 1947 inclusive. Four hundred and fifty-three partial or total laryngectomies were done, and 159 patients were treated initially by irradiation (table 1).

Three hundred and seventy-one operations or initial courses of treatment were given through December 1942 (one hundred and eighteen laryngofissures, one hundred and sixty-two laryngectomies and ninety-one initial courses of treatment by irradiation) and therefore are suitable for evaluation of five year end results. However, sixteen of the laryngofissures were indeterminate because of death from other cause within five years or failure of follow-up, leaving 102 (determinate) patients surviving more than five years. Of the one hundred and sixty-two laryngectomies, the one hundred and twenty-three done prior to 1940 were not done by us, and 4 of the patients on whom we performed laryngectomy died of other cause or were lost to follow-up, leaving thirty-five operations in determinate cases; only thirty-one of these should be counted, however, because 3 patients had been treated previously by laryngofissure and 1 by irradiation. Of the 91 patients treated initially by irradiation, 8 were indeterminate and 83 determinate. Adding these groups, 102 patients operated on by laryngofissure, 31 by laryngectomy and 83 treated by irradiation, we have 216 determinate patients treated by us from 1930 to 1942 inclusive, with a final survival rate of 72 per cent.

Analysis of the nineteen recurrences in one hundred and two laryngofissures showed that 74 per cent occurred in the first three years and that four (22 per cent) occurred after five years. It is suggested, therefore, that three year statistics have some value and that five year statistics are by no means final.

With regard to laryngofissure, the initial cure rate of 81 per cent and the salvage of 51 per cent of the recurrences following this procedure lead us to insist on its value and to protest against the current tendency to disparage it. However, we strongly urge that its use be severely restricted to suitable cases.

Recurrence after laryngectomy has, in this series, not been successfully treated, but recurrences after irradiation have been salvaged by second courses of irradiation and laryngectomy.

Continued post-treatment observation for at least five years, and preferably for life, is advised for all cases, and the prompt institution of intensive treatment, surgical or radiative, or a combination of the two, is necessary in case of recurrence or metastasis if salvage of failures of initial treatment is to be secured.

Criteria for the selection of treatment should be constantly studied and reevaluated in the light of end result analyses such as that presented in this paper, and technic of treatment should likewise be reevaluated and modified according to experience.

ABSTRACT OF DISCUSSION

Dr. Gordon B. New, Rochester, Minn.: Patients with cancer of the larynx as a rule have only one good chance to get well. While secondary operations and irradiation will sometimes salvage an additional group, the surgeon who determines what the original method of treatment is to be has an important decision to make and should have all the available information that will aid him in doing this. To give the patient the best possible chance, I feel that microscopic examination of a fresh frozen section is essential. This frequently aids in selecting a small group of patients which may be successfully taken care of under suspension laryngoscopy, the lesion being destroyed with surgical diathermy or by means of radium seeds. This fresh frozen section may also determine whether a conservative operation or a laryngectomy should be done. Four methods are used in the treatment of carcinoma of the larynx: 1. The removal or treatment of the local lesion under suspension laryngoscopy; 11 per cent of our patients are treated in this manner. 2. Thyrotomy may be used as an exploration to determine the treatment of choice, either a conservative operation or a laryngectomy. The surgical removal of the growth with cartilage and diathermy are used in 41.2 per cent of our cases. 3. Laryngectomy alone or associated with dissections of nodes is used in 47.8 per cent of our cases. 4. Irradiation for the inoperative cases is used in 21.5 per cent of our cases. The size, the location and the extent of the growth, the grade of the malignancy, the presence or absence of extralaryngeal extensions of the disease or metastasis to the cervical nodes, the age of the patient and his general condition all must be considered. We use suspension laryngoscopy, and after a careful examination with "pentothal sodium," oxygen and curare, a biopsy is made, and with this method we are able to take care of a percentage of our cases. We feel that the fresh frozen section diagnosis must be employed in order to give the patient the best possible treatment. The operative mortality in the treatment of carcinoma of the larynx has been reduced considerably in the last few years with improvement of technic and the use of penicillin. From 1939 to 1945, 217 laryngectomies, 173 thyrotomies and 38 laryngeal suspensions and removal of the carcinoma were done at the clinic, making a total of 428 patients with only 2 deaths—both of coronary thrombosis—an operative mortality of 0.47 per cent.

Dr. Paul Holinger, Chicago: The overwhelming rich mass of statistics which Dr. Jackson has presented leads us to feel that we must digest them before beginning a discussion. I should like to ask two questions in regard to some of the points raised. Would it be possible to include in this study the grade of the tumors in relation to the various modalities of therapy used, and finally in relation to the end results? Dr. New mentioned this in his discussion, but I repeat it because of the second question that comes to mind. The second question is the relation of the age of the patient to the incidence of recurrence. This is possibly in part at least dependent on the grade of malignancy encountered in each case of recurrence. Thus the problems of the grade of the tumor, the age of the patient and the incidence of recurrence might show a definite relationship. I should like to take this opportunity to compliment Drs. Jackson, Blady, Norris and Maloney, not only for presenting this gold mine of statistics, but also in the excellence of the results which they have achieved in the treatment of cancer of the larynx. We all look forward to the opportunity of studying the tables after they are printed.

Dr. Gabriel Tucker, Philadelphia: The authors have presented a large series of cases, and I wish to compliment them on their excellent results on which their accurate and beautifully presented statistics are based. In my own consecutive series of 680 cases of cancer of the larynx I have recently reviewed a group of cases observed between 1933 and 1943, with a follow-up for five year end results to 1948. This series included

331 cases. In the ten year period there were 117 laryngofissures and 75 laryngectomies. The results in the laryngofissure group have been tabulated and are as follows: Five patients died of primary cancer of the lung without recurrence in the larynx. Three patients died of cardiovascular disease, 1 of acute nephritis, 1 of an old bronchiectasis (a postoperative pulmonary complication). In all, 10 patients died in the five year period from other causes without recurrence of cancer in the larynx. In 6 cases, follow-up was unobtainable. This reduced the number to 101 that may be used to estimate the percentage of five year freedom from cancer. Fourteen of this group had recurrence and metastasis and died of cancer with involvement of the larynx. Deaths from cancer in the five year period were 14 out of 117; deaths from other causes 16; five year cure by thyrotomy, 86 per cent. It is the responsibility of the surgeon who operates on laryngeal cancer to do everything possible to see that adequate follow-up observation is carried out. It is not only a matter of follow-up for recurrent carcinoma, but other conditions may arise in the larynx. Dr. McReynolds of Galveston, Texas, told me of a patient on whom I did a laryngofissure for squamous cell carcinoma of the larynx fifteen years ago. The patient consulted Dr. McReynolds because of increasing hoarseness and on examination a mass was found on the larynx, which on removal was histologically found to be a fibroma.

DR. MURDOCK EQUEN, Atlanta, Ga.: Dr. Jackson's presentation has afforded us much food for thought and, as usual, he is to be congratulated on his excellent results. When a patient presents himself with cancer of the larynx, the operator must determine, according to his experience, what operation will afford that particular patient the best chance for recovery, varying from the partial removal of a vocal cord to total laryngectomy with radical dissection of the nodes of the neck. However, we feel that in the presence of an extensive intralaryngeal growth, a total laryngectomy plus intensive roentgen therapy has given us the best results. It might be well to consider rehabilitation of these patients as far as the voice is concerned. We recently presented before the University of Alabama postgraduate seminar a woman who, five years ago, had had a total laryngectomy, and she spoke distinctly with an esophageal voice over a microphone and was heard clearly throughout the large assembly hall. The difficulty in obtaining artificial larynges during the war made both the doctor and the patient realize what an excellent esophageal voice may be obtained by patients after many hours of tedious practice.

DR. CHEVALIER L. JACKSON, Philadelphia: I am sorry that Dr. Martin got lost out in Iowa and missed connections. He sent a courteous telegram of apology. I am most grateful to Dr. New for his discussion and also to Dr. Holinger, Dr. Tucker and Dr. Equen. There are a few comments that I should like to make, but I will be extremely brief, because I have asked the chairman to allow our collaborator, Dr. John Blady, to make the final statement of the discussion. Dr. New and Dr. Holinger have both mentioned grading. I should like to say that we take grading into consideration in the borderline cases in making the decision between the various methods of treatment. The grading, we think, is one of the less important factors, in our experience, but certainly not to be ignored. Dr. Blady can give you some figures about the evaluation of grading. I was interested in Dr. Tucker's 5 cases of carcinoma of the bronchus. We have had several in which it was difficult to tell whether the bronchial lesion was a primary tumor or a metastasis, because we have had some in which we were sure of metastasis.

DR. JOHN V. BLADY, Philadelphia: When we deal with cancer, I believe that we should not confine ourselves to one particular modality of treatment when several modalities are available. Cancer requires radical treatment regardless of whether it is by irradiation or by any method of surgery. In our clinic we feel that the methods are secondary to the primary consideration of the treatment that will give the patient the best prognosis. In our consideration of treatment, for example, laryngectomy has definite criteria, and so does laryngofissure. Dr. Jackson has indicated the type of cases suitable for laryngofissure; however, the decision on the selection between laryngofissure and irradiation, and laryngectomy and irradiation, is not always quite so easy. Dr. Holinger asked about grading. In our opinion grading is an important criterion which helps in the selection of one or the other modality of treatment. Some time ago we analyzed the relationship of grades of tumor and results. We found that in grade 1 and grade 2 cancer, for example, the five year survival statistics of all three methods (that is, laryngofissure, laryngectomy and roentgen irradiation) were equally good, but grade 3 type of tumor, we found, behaved entirely differently. For laryngectomy, for example, the end results for grade 3 cancer were 44 per cent five year survivals in a group of 27 cases. On the other hand, in the cases that we thought suitable for irradiation and which were so treated, the five year results were only 27 per cent. Grade 4 tumors are definitely radiosensitive and radiocurable. One more thing deserves to be stressed. Treatment by irradiation has been relegated as treatment for inoperable cancer and only considered when the surgeon was of the opinion that he could not remove all of the tumor. I feel operability of the tumor is not the criterion for irradiation. Treatment by irradiation when properly used in the selected cases may not only save the patient's voice and spare him untold anguish but may also save his life. In our efforts to continue to improve our methods of treatment and thereby save more lives, we should continue to study criteria which may eventually give us the best procedure for each case of cancer.

CARCINOMA OF THE BREAST

SIR STANFORD CADE, K.B.E., C.B.
London, England

As a cause of death, cancer of the breast is registered in increasing numbers. The rise in incidence is a real one and not due to better methods of diagnosis or to more accurate certification. This increase, nevertheless, is due chiefly to the changes in the age structure of the population, that is to an increase in the number of persons living at ages of 50 to 75 years. As a more speculative reason, it can be said that cancer of the breast is on the increase when the birth rate is falling and when lactation does not take place. Smaller families, failure of lactation and longevity contribute their share in the increase of the disease. In England and Wales, it heads the list of incidence as the site of cancer in women and accounts for over 20 per cent of the total deaths due to cancer in women. This increase in mortality and in incidence suggests the need for an unbiased review of the present day methods of treatment and a critical analysis of the causes of failure to reduce the mortality rate. Such an analysis must be based on the natural history of the disease and should correlate this with the various methods of treatment.

In comparison with all other sites of cancer, with the exception of cancer of the skin, the breast is the most favorable site, that is, the least rapidly lethal site. The expectation of life in untreated patients has been computed from time to time in many countries. The mean duration is 39.3 months; it is therefore essential that one should not rely on three year survival rates as a yardstick to measure the efficacy of any given form of treatment. To appreciate the achievement of accomplishment of treatment, Prof. Major Greenwood investigated the expectation of life of a woman 55 years of age, under various conditions. On actuarial estimation, the normal expectation of life is 18.77 years (age at death, 74 years); with untreated cancer of the breast it is reduced to 3.8 years (age at death, 59 years). What happens if treatment is

Surgeon, Westminster Hospital, Mount Vernon Hospital and The Radium Institute, London.

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given? If the treatment is given under average conditions, the expectation of life is 5.78 years (age at death, 61 years); if treatment is given under best conditions, 12.93 years of life can be expected (age at death, 68 years). Even under the best conditions, there is a loss of 5 years of life on the average. How does the best condition differ from the average? It differs firstly in the condition of the patient when first applying for treatment and secondly in the actual methods of treatment.

CONDITION OF THE PATIENT

The state of the patient can be assessed from many angles: (1) age, (2) clinical type of tumor, (3) histologic variety of tumor, (4) duration of symptoms, (5) physiologic state of the breast and (6) extent of the disease.

Age.—Except for carcinoma of the breast in the very young (under 25 years of age), there is no definite evidence that the disease is more lethal in the third or fourth decade than in more advanced years of life. There is some evidence that in the very old (over 75 years of age) the disease does not materially shorten life.

Clinical Types.—The clinical types are well known and fall into one of the following types: (1) scirrhous, (2) encephaloid, (3) duct carcinoma, (4) atrophic scirrhous and (5) Paget's disease of the nipple. Of these the most malignant is the common scirrhous type and the least malignant, the atrophic scirrhous type. The encephaloid or soft variety, although it grows more rapidly and breaks down, is less lethal, as the incidence of skeletal metastasis is less frequent and longer delayed. The duct carcinoma and Paget's disease of the nipple are of moderate degree of malignancy.

Histologic Varieties.—Microscopic varieties are many. The following six cover the commonest types: (1) papillary carcinoma, (2) intraduct carcinoma, (3) adenocarcinoma, (4) scirrhous carcinoma, (5) medullary carcinoma and (6) mucoid carcinoma. The prognostic significance of these various types is as follows: the most malignant are the scrirrhous and the medullary and the least malignant the papillary and the intraduct types. The in between group is that of adenocareinoma and of mucoid carcinoma. The most malignant give rise to metastasis earlier in the stage of the disease, and also more frequently.

Duration of Symptoms.—When a sufficiently large number of patients are available for study, it becomes clear that the actual length of history or duration of the disease does not by itself imply a poor prognosis. Thus very short histories of three weeks, or less, are not infrequently associated with obvious spread to the axillary lymph nodes, and, conversely, eight to twelve months' history may show the tumor, although bulky, to be still localized in the breast. Duration by itself is of less importance than rate of growth; a slow rate is as a rule associated with long histories and indicates a low grade of malignancy; the converse is also true.

Physiologic State of the Breast.—It is generally recognized that pregnancy and lactation are factors which seriously affect prognosis. Rate of growth of mammary cancer during pregnancy and lactation is rapid, and termination of pregnancy leads to temporary regression. The most virulent type of all, the acute cancer, is seen during lactation. The virulence of the disease is evidenced by the early and widespread lymph node invasion.

STAGE OF THE DISEASE

To assess the immediate and ultimate prognosis, to estimate the probable expectation of life and above all to find out the value of any given method of treatment, clinical staging is of paramount importance. Many classifications have been suggested. The best known and the most valuable is that of U. V. Portmann. It is a clinical classification and has the merit that it can be applied by the clinician on examination of the patient, without accessory aids. I have selected Portmann's classification as the most likely to throw light on the efficacy of various methods of treatment. In a simplified form and with minor modifications, it is as follows:

Stage I. Tumor of the breast only
Stage II. Tumor of the breast and cutaneous changes and/or axillary glands
Stage III. Tumor of the breast and supraclavicular glands or contralateral axillary glands or fixation to pectoral fascia
Stage IV. Skeletal or visceral metastasis

Of all factors affecting prognosis, stage of the disease is the most important; size, site, length of history, rate of growth, histologic variety or clinical type have some prognostic value, but the key to the assessment is clinical staging.

Attention must be drawn to the following points:

1. Stages I and II are anatomically within the area covered by radical mastectomy; stage III is beyond surgical excision and stage IV only suitable for palliative measures.

2. Cutaneous involvement can be one of three types: (*a*) direct spread of the tumor to the skin, with or without fungation; it is the least malignant; (*b*) the diffuse invasion with edema, the pigskin, or *peau d'orange,* type; it is of grave prognosis (*c*) the invasion of the skin by multiple discrete nodules is the most grave as regards chances of recovery.

3. Prognosis in stage I and II cases, depends on the presence or absence of palpable axillary nodes. It is, of course, agreed that sometimes clinically nonpalpable nodes show histologic invasion and, conversely, palpable nodes may occasionally show inflammatory changes only; but in most cases the presence or absence of palpable and clinically malignant axillary nodes is the best guide to the future of the patient.

CHOICE OF METHOD OF TREATMENT

The methods used are radical mastectomy, radiation (radium or roentgen rays) and a combination of both. The stage of the disease guides the selection of the method.

In stage I the method of choice is radical mastectomy. It is not contended that radiation alone cannot achieve total regression of the tumor for five to eight years; but at present it does not do so as certainly, as regularly and as frequently as radical mastectomy. Nearly 90 per cent of five year survivals and 65 per cent of ten year survivals have been obtained by radical surgical treatment in stage I cases. It remains the method of choice. A considerable number of patients treated solely by radium has shown equally good results, but in some cases the condition recurred locally after eight years and in others it remained quiescent but they were not free from disease.

In patients with stage II lesions the results from surgical treatment show a great drop; no longer 90 per cent but only 30 per cent of five year survivals are achieved. Here radiation as the sole method of treatment is nearly as good (or as poor) as surgical treatment, but the combined method results in a definite improvement.

In stage III cases, radiation alone has given better results than surgical treatment and is the method of choice.

Surgical Treatment.—Radical mastectomy is considered the method of choice. The operative mortality rate is low, 1.65 per cent in 11,014 mastectomies done in twenty-two hospitals in London and the main university cities in England and Wales. Morbidity is slight, and most women have a full range of movement at the shoulder joint. Radical mastectomy remains the greatest achievement of surgery in the treatment of cancer of the breast.

Simple mastectomy is suitable in aged persons for the removal of a fungating mass, in bad surgical risks and in cases in which radiation is not considered suitable. The value of simple mastectomy is limited; it does not touch the axillary contents, and if disease is present there, there it remains.

Radical mastectomy is unsuitable in patients with edema of the skin, discrete cutaneous nodules and large fixed or extensive lymph nodes. In such cases, incalculable harm has followed radical mastectomy. The condition in such cases should be recognized as inoperable and the patient not submitted to operation. Patients live longer and in far greater comfort without surgical treatment, which is really not surgical intervention, but interference. It is considered important to stress the point that surgical treatment in unsuitable cases is a grave error of judgment.

Radiotherapy.—Radiotherapy is applicable as the sole method of treatment or in association with surgical treatment; in the latter it can be given as preoperative treatment, as postoperative treatment or both before and after operation. The indication for each will be considered.

Radiotherapy as the Sole Method of Treatment.—Radiotherapy is the method of choice without question in the treatment in cases of stage III lesions. Surgical treatment in this group has proved a failure, that is, the percentage of five year survivals after surgical treatment is negligible. On the other hand, the achievement of radiation is not only better, but considerable. The cases can be subdivided into two groups: (1) those cases in which complete regression of the disease is achieved, in which on clinical examination there is no evidence of active cancer. These patients are in a minority; they are the most radiosensitive group, and the question arises: when such total regression is achieved, should radical mastectomy be performed? There is as yet no definite answer to this question, but my impression at present is that it is justifiable to be content with radiation only and to await developments. If there is recurrence of local disease, surgical treatment should be considered, especially if further radiotherapy is handicapped by cutaneous changes due to previous radiation. Such cases are seen five to eight years after adequate radium therapy. (2) Cases in which regression but not total disappearance of the lesion is achieved by radiotherapy. In this group, many patients remain well for periods of five years and more. They still have a tumor of the breast, perhaps harder and smaller than before treatment, with palpable axillary or cervical nodes, but the disease is quiescent, does not cause much inconvenience and does not affect the general health of the patient. This palliation is a great achievement, if not the greatest of radiotherapy; careful follow-up of patients in this group shows without doubt the value of this method.

PREOPERATIVE AND POSTOPERATIVE RADIOTHERAPY

It is important to define precisely what is meant, what is aimed at and what is achieved by these two different uses of radiation.

Preoperative Radiotherapy.—Preoperative radiotherapy aims at sterilization of an active neoplasm in the breast, of the skin over it and of the immediate regional lymph nodes, in the axilla and below the clavicle. Careful histologic studies of breasts amputated at various periods after irradiation have been made and show obvious effects familiar in other sites, such as the uterus, the skin and the tongue. These changes vary from complete fibrosis to various degrees of degeneration of cancer cells—formation of fusion giant cells, abnormal mitosis, hyaline degeneration or calcification. Statistical evaluation of this method—preoperative radiation followed by radical mastectomy—is forthcoming from several centers in England and in Scandinavian countries. At Westminster Hospital, in 448 cases analyzed between 1930 and 1942, the five year survival rate with preoperative radiation was greater than with postoperative treatment, namely, 73 per cent in the former and 53 per cent in the latter (Dr. Stoll, Westminster Hospital, 1947).

Postoperative Radiotherapy.—Postoperative radiotherapy deals, and can only deal, with extension of the disease, actual or potential, beyond the anatomic area covered by the radical mastectomy, namely, the supraclavicular and anterior mediastinal or retrosternal lymph nodes and the skin flaps lifted at the operation. Unless the lesion is inoperable—and it is my contention that, if so, it must not be operated on—postoperative radiation deals with potential disease and is of speculative value. An analysis of my own series of cases and those at Westminster Hospital shows that in stage I cases no improvement of five or more years' survival has been achieved by postoperative radiation as compared with radical amputation as the sole method of treatment. It is reiterated that this applies only to stage I cases, stage I clinically and subsequently proved to be so by an absence of metastasis on histologic examination of all axillary lymph nodes. Postoperative treatment is of value in stage II cases, in which axillary lymph nodes although operable are shown to contain metastasis. In such cases, postoperative radiation improves the prognosis. In stage II cases, the ten year survival rate is thereby raised from 25 per cent by surgical treatment alone to 32 per cent by surgical treatment and postoperative radiation.

The value of postoperative radiation in stage III cases is less than that of radiotherapy as the sole method. Here ten year survival is obtained in 7 per cent only by surgical treatment and nearly double that —13 per cent—by radiation, whereas a combination gives only 9 per cent, showing that surgical treatment in stage III, alone or with radiation, is a worse method of treatment than radiation alone.

STATISTICAL EVALUATION OF RESULTS

The total number of patients with cancer of the breast treated in the period 1925-1948 is 915. The cases are subdivided in the following groups:

Primary cases with surgical treatment alone	381
Primary cases, treatment with radium alone	144
Primary cases, surgical treatment and radium	233
Recurrent cases, treatment with radium	157
Total	915

Of the 915 patients, 594 were treated more than five to fifteen years prior to the time of writing and lend themselves to statistical analysis. There were in fact, 632 such patients, but 38 could not be traced and were omitted. Of these, 348 patients could be followed up to fifteen years or more, and these are shown in table 1.

Table 2 shows the survival rates by stage of the disease, according to the method of treatment.

TABLE 1.—*Cancer of the Breast, 348 Cases*

Stage	Total Number	Percentage of Surviving Patients, Free from Disease		
		5 Years	10 Years	15 Years
I	97	87	65	36
II	138	29	25	12
III	95	20	15	7
IV	18	0	0	0

TABLE 2.—*Cancer of the Breast, 1932-1938; 263 Cases: Five and Ten Year Survival*

Stage	Percentage of Patients Surviving After Surgical Treatment		Percentage of Patients Surviving After Treatment with Radium		Percentage of Patients Surviving After Surgical and Radium Therapy	
	5 Years	10 Years	5 Years	10 Years	5 Years	10 Years
I	87	65	70	60	78	63
II	29	25	25	21	35	32
III	9	7	15	13	10	9

SUMMARY

The choice of method of treatment depends chiefly on the clinical stage of the disease. Radiotherapy is of value: (1) as the sole method of treatment in cases of stage III disease, and here the end results following radiotherapy are better than those following surgical treatment; (2) as a preoperative measure in cases of stage I disease, when improved results can confidently be expected, and (3) as a postoperative measure in cases of stage II disease and for recurrences. Radical mastectomy remains the best method of treatment in cases of stage I disease.

ABSTRACT OF DISCUSSION

DR. U. V. PORTMANN, Cleveland: That cancer of the breast is increasing in England and Wales is interesting, and the explanations seem logical. I know of no published evidence that the incidence is increasing in this country. I have noted a proportionately higher percentage of benign tumors of the breast and early stage I and II cancers during the past fifteen years than previously. It may be that women and possibly physicians have been educated to discover breast tumors earlier and seek treatment more promptly. I agree that young women have just as good a chance of survival as the elderly, provided that the extent of involvement is similar in both age groups. Also I agree that scirrhous carcinoma is the most malignant type. Scirrhous carcinomas grow relatively slowly and insidiously, invade extensively when still rather small and are most radioresistant. Also, I agree that pregnancy and lactation seriously affect prognosis. This may be explained by the supposition that there are physiologic factors necessary for development and growth of the fetus which also stimulate growth of cancer. The presence or absence of involvement of axillary nodes is of considerable prognostic significance. About 85 per cent of women without axillary involvement (stage I) survive five years after radical mastectomy alone. But there are 15 per cent who die of cancer before that. In the latter group, neoplastic cells may have passed through the axilla to supraclavicular nodes or extension may have taken place elsewhere as, for example, to the internal mammaries or parasternal nodes where they are undetectable. In such circumstances radiotherapy could be of little benefit. Axillary involvement seldom was detected in patients, in whom the disease was ultimately classified as stage II involving few nodes. Of such patients 40 per cent undergoing operation alone and 60 per cent of those having postoperative radiotherapy survived five years. Fifty per cent of our series with primary cancer of the breast, up to 1939, had clinical and pathologic "criteria of incurability," with or without evidences of remote metastases when first examined (stages III and IV). Of those without remote metastases (stage III), 15 per cent given radiotherapy alone, and only 4 per cent of those operated on, survived five years.

DR. ROBERT J. REEVES, Durham, N. C.: I believe that we in this country agree with Sir Stanford's ideas. It is not known why one carcinoma of the breast may be purely osteomyelitic, whereas, another may be purely proliferative, similar to the type of cancer in the prostate. There is little difference in stage I cures throughout the world. I am happy to see a universal agreement in regard to the stage of the disease and the criteria of curability. Dr. Portmann's criteria of curability is something which we in the South are trying to get all of our radiologists and surgeons to agree on, because there are still some surgeons who believe that some patients are incurable; however, they may be operable. But the point of this classification is that we do not believe that irradiation can make an incurable condition curable. I am occasionally requested to use radiation for incurable patients, to make them operable. This usually does more harm than good. Sir Stanford's classification of the pathologic and clinical appearance of cancer cannot be stressed too much among radiologists, as one must know the basic pathologic condition and the clinical classification and appearance of the lesion before one employs irradiation and gives a prognosis. The location of the tumor in the breast is also important, because of the lymphatic drainage. One must know the lymphatic drainage of the breast in order to give adequate irradiation. It is also agreed that in the stage I disease operation alone is the method of choice. In the clinic with which I am associated, at the surgeon's request, we give postoperative radiation, more as a matter of insurance. We cannot always be certain about the extent of the lesion. However, we believe that the percentage of cures has increased, whereas in stage II, radiation alone is certainly never advocated; it is either given preoperatively or postoperatively, combined with surgical treatment. I hope that radiologists can agree on therapy some day, as the surgeons have agreed on the type of operation. Unfortunately, there is still some difference of opinion as to the type of irradiation, whether it be preoperative or postoperative, and also the points irradiated.

DR. HENRY J. ULLMANN, Santa Barbara, Calif.: May not one interpret the 15 per cent (that Dr. Portmann spoke about) of failures in stage I to be those cases in which generalized metastasis has already occurred? If one removes the primary lesion before it has spread, one cures the patient. If one does not, the patient may have extensive recurrences or may have metastasis years later. I would like to ask Sir Stanford whether it is not possible to bring on artificial menopause by irradiation in persons below the menopause age, and cannot radiologists convince many surgeons that it is useless to give postoperative radiation for insurance in stage I cases? Should not postoperative radiation be used only in stage II cases for the recurrences, that is, when preoperative radiation has not been done? When at operation the surgeon finds nodes in the axilla that are

not palpable, that is, the pathologic stage II—not clinical—should he or should he not immediately refer the patient for postoperative irradiation? Should one save postoperative irradiation for the possibility of recurrences? I should like Sir Stanford's opinion on that.

DR. ROBERT R. NEWELL, San Francisco: Doctors who take the trouble to codify their diagnosis and treatment and to collect their statistics and present them to us perform a priceless service, particularly in cancer. In deciding what treatment to use for one's patients, one may classify them by any scheme that fits one's therapeutic convictions. But classification has also to serve in comparing the results of different methods of treatment in the hands of different doctors. For this purpose, classifications should be uniform. For some doctors Sir Stanford's stage II would spread over into stage III, because they would attempt a surgical cure only if skin were not involved in the cancer. Also, I am uncertain whether his stage I is the same for his patients treated surgically as for those treated with radium, because in the former one has microscopic check on the axillary nodes but for the latter only palpation, with its well known errors in missed glandular metastases and in enlarged benign nodes miscalled cancerous (about 30 per cent).

DR. CONSTANCE A. P. WOOD, London, England: Sir Stanford Cade said that he had noticed that it was in those patients who gave a long history of symptoms before coming for treatment that he often obtained the best end clinical result. I think this is true not only in cancer of the breast but also in cancer of the cervix. In a survey made in London of approximately 1,000 cases of cancer of the cervix, it was shown that the highest five year survival rate occurred in that group of patients giving the longest clinical history of symptoms. I believe that this is explained by the fact that in the more slowly growing types of tumor and, hence, those giving the longest clinical histories, though their initial response to radiation is slower, the final end result obtained is better than in the more rapidly growing anaplastic types. The anaplastic so-called radiosensitive type of growth with a short clinical history may show a good initial response to radiation but a low final cure rate. Thus, there is no correlation between radiosensitivity and radiocurability. The more rapidly growing types of tumor are the ones which give the worst results both to radiation and to surgical treatment.

SIR STANFORD CADE, London, England: Dr. Portmann asked what evidence we had that preoperative treatment does affect the prognosis. We have not been doing this preoperative treatment systematically for as long as postoperative radiation, and there has been little opportunity so far to compare the two series of five year results statistically. In stages II and III results were improved by about 20 per cent in the five year survival rate. We were encouraged and guided in adopting preoperative radiation by the results obtained at the Radiumhemmet in Stockholm. If Professor Berven is in the room, perhaps he will confirm this, as I believe that there they have improved the survival rate from 7 or 9 per cent to 30 per cent by giving preoperative as well as postoperative radiation. I entirely agree with Dr. Portmann about the question of submitting doubtful cases to surgical treatment. I should like to stress the point that, accepting his criteria of incurability, one should not submit inoperable cases to surgical treatment. In the clear way that he put it, "These are the criteria of noncurability." In that important group I wish to stress the value of roentgen rays as a palliative treatment. Many women with incurable cancer—perhaps as many as 25 per cent—are given an added five year survival by roentgen therapy. They live with their tumor, which has been rendered more or less innocuous by radiation. We have found no value in postoperative radiation in stage I cases, and the survival rate in early cases is not improved by postoperative treatment. Dr. Newell's criticism is valid. As regards my definition of stage I, I know that my classification is not the best, but I have been inclined to accept it for the sake of simplicity. In stage II, I have included in one group those with axillary nodes and those with metastasis. I have done it because these cases are still within the anatomic area of a radical mastectomy. I realize that the various types of skin and glandular spread are of different prognostic significance; nevertheless I group them together on anatomic grounds. Then I break them down into subgroups, some suitable for surgical treatment, others for radiotherapy. I thank Dr. Constance Wood for drawing attention to the fact that the length of history has nothing to do with the stage of the disease. A patient with a history of two years, or eighteen months, can still be in stage I, and this indicates that we are dealing with a different type of cancer of lesser virulence or rate of growth.

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d-TUBOCURARINE IN WAX AND OIL

For Control of Muscle Spasm in Tetanus

MILTON R. WEED, M.D.
DONALD F. PURVIS, M.D.
and
ROBERT D. WARNKE, M.D.
Detroit

In the treatment of tetanus, the primary aims are neutralization of the toxin and control of tetanic muscle spasms. Whereas a therapeutically sound regimen for administration of antitoxin has been formulated,[1] control of the convulsions and muscle spasm has remained unsatisfactory. The purpose of this paper is to report the effect of a new preparation, d-tubocurarine in wax and oil,[2] on the convulsions and muscle spasm in this disease. Each cubic centimeter of this preparation contains 175 mg. of d-tubocurarine in 4.8 per cent wax in peanut oil. Our results with this material in 3 consecutive patients with tetanus who lived have been sufficiently good to warrant more extended observation.

REPORT OF CASES

CASE 1.—R. Z. (fig. 1), an 11 year old white school boy, was admitted to the Detroit Receiving Hospital June 11, 1947, complaining of frontal headache and cramping pains in the left leg and back, of twenty-four hours' duration, and of difficulty in opening his mouth, of six hours' duration. Twelve days before admission, while wading, he had punctured the plantar surface of his left foot with a nail. About five days later swelling and redness were noted about the wound site, and in the next few days purulent material exuded from the lesion. The patient had not received tetanus toxoid previously and did not receive antitoxin at the time of the injury.

Physical Examination.—Physical examination revealed an acutely ill boy who screamed in pain as repeated violent convulsive spasms racked his body into opisthotonus. His flushed face was wet with sweat. The temperature was 102 F., pulse rate 104, respirations 22 and blood pressure 120 systolic and 70 diastolic. His neck and back were stiff. Spasm of his jaw muscles prevented separation of his teeth for examination of the mouth and throat. The abdominal muscles were moderately tense. There was pronounced spasm of the left leg with plantar flexion of the foot. A small well healed scar was present over the midplantar surface of the left foot. Slightest stimulation of the left leg resulted in generalized tetanic convulsions. The results of the remainder of the physical examination were not remarkable.

Course.—The patient was immediately placed in a quiet darkened room and was given 60,000 international units of tetanus antitoxin intravenously and 40,000 units intramuscularly. During the next three days he was given an additional 100,000 units of antitoxin intramuscularly. Curare ("intocostrin") was administered in 100 unit doses intramuscularly at approximately four hour intervals during his first two hospital days. Relaxation of the spastic muscle groups occurred within twenty minutes and lasted about one hour. The patient complained of

From the Department of Medicine, Wayne University College of Medicine and The Detroit Receiving Hospital.

1. Firor, W. M.: The Treatment and Prevention of Tetanus, Internat. Abstr. Surg. **75**: 185-190 (Aug.) 1942.

2. The drug was supplied through the courtesy of E. R. Squibb & Sons, New York.

diplopia, salivation and dysphagia following administration of the curare. On June 13 a supply of d-tubocurarine in wax and oil was obtained, and the patient was given 0.5 cc. of this preparation intramuscularly without effect. On the following day the dose was increased to 0.75 cc. Moderate relaxation of jaw and back muscles was noted in about an hour. At two hours relaxation was greater, with considerable decrease in the number and severity of tetanic spasms. The effect seemed

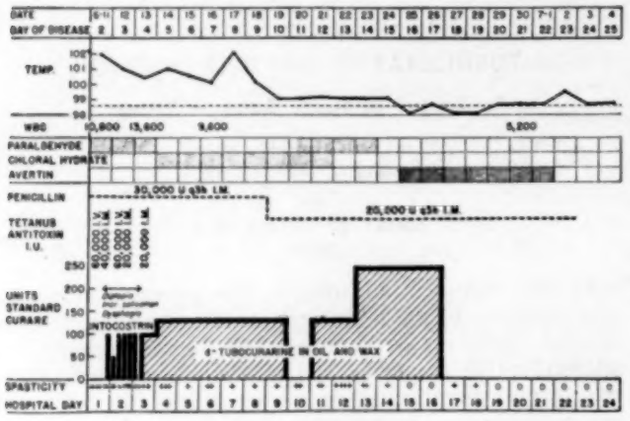


Fig. 1.—Chart of data in case 1.

to wear off in about twenty hours. From June 14 to June 22 with the exception of June 20, when it was omitted with return of spasm and tetanic contractions, the patient was given 0.75 cc. daily. On June 22 there was an exacerbation of tetanic contractions with severe spasm of back and leg muscle groups. The dosage of d-tubocurarine in wax and oil was increased to 1.25 cc., with relief of symptoms in about two hours. This dose was given daily until June 26, when our supply of the drug was exhausted. None of the toxic symptoms noted with aqueous curare were observed. In addition, the patient was given penicillin 30,000 units every three hours as a prophylactic against pneumonia. Paraldehyde, 8 cc. in oil, was given by rectum every eight hours for sedation. Later chloral hydrate, 4 cc. every four hours, by mouth, was substituted, because he could not retain the paraldehyde. When the d-tubocurarine in wax and oil was exhausted, tribromoethanol solution ("avertin," with amylene hydrate [solution]), 3 cc. in 150 cc. of water, was administered rectally at night for seven days.

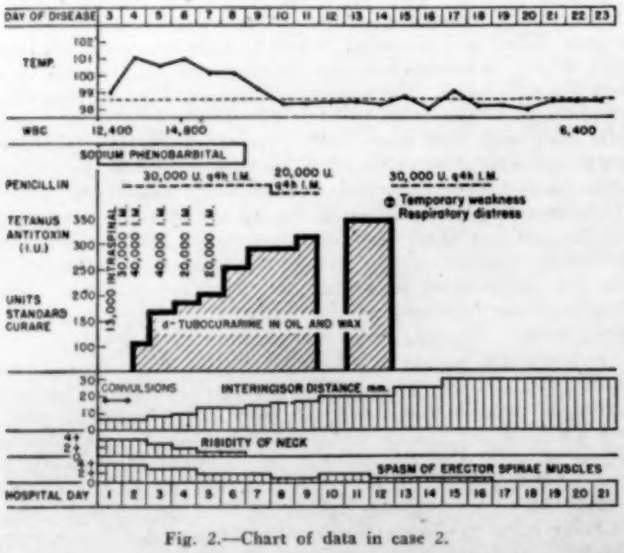


Fig. 2.—Chart of data in case 2.

On June 18, seven days after the initial dose of antitoxin, a macular erythematous rash developed, which responded promptly to 50 mg. of diphenhydramine hydrochloride ("benadryl hydrochloride"), administered three times daily by mouth. On July 12, because of residual plantar flexion of the left foot, a short leg walking cast was applied. This was removed July 18, and the patient was discharged two days later, on his fortieth hospital day. One month later he was well and had resumed all his previous activities.

Comment.—This represents a case of severe local and generalized tetanus. Treatment with d-tubocurarine in wax and oil was employed over a fourteen day period without manifestation of toxicity. There was no evidence of cumulative effect. Relief of spasm was gratifying, but the dosage employed initially was too small to achieve the maximum benefit possible without toxicity. We believe that the infected focus of infection should have been debrided in spite of its innocuous appearance and that intrathecal antitoxin should have been administered under ether anesthesia at the time of débridement in the operating room.

Case 2.—R. W. (fig. 2), a 45 year old Negro carpenter, was admitted to the Detroit Receiving Hospital Sept. 28, 1947, because of stiffness of the jaws of two days' duration and attacks of cramping pain in the middle part of the abdomen, back and extremities of one day's duration. Three weeks before admission he smashed the distal phalanx of his left ring finger with a hammer.

Physical Examination.—Physical examination revealed an acutely ill man with risus sardonicus and opisthotonus, crying out with pain. The temperature was 98.8 F., pulse rate 80,

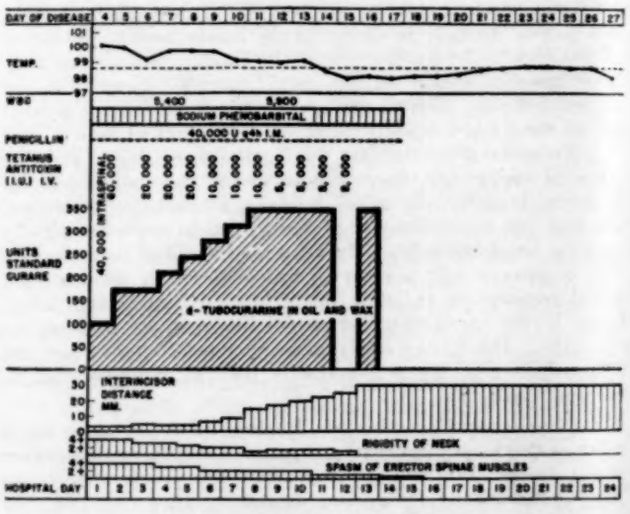


Fig. 3.—Chart of data in case 3.

respirations 20 and blood pressure 160 systolic and 90 diastolic. Maximum measurement of interincisor distance was 7 mm. His neck was stiff and his back was arched so that a fist could be passed under it with ease. There was pronounced spasm of the abdominal muscles and of the extremities, and touching them produced painful spasms. The terminal phalanx of the left ring finger revealed a loose finger nail with crusted granulations at its edges. The results of examination otherwise were not remarkable.

Course.—The patient was given 3,000 units of antitoxin intrathecally and 30,000 units intramuscularly at once, and the wound was debrided. An additional 120,000 units of antitoxin was given during the next four days. Sedation with phenobarbital sodium, 0.16 Gm. intramuscularly every six hours, was ineffectual in controlling convulsions or spasm. Twenty hours after admission, treatment with d-tubocurarine in wax and oil was begun with a dose of 0.6 cc. (105 mg. d-tubocurarine). Slight relaxation was noted in about two hours, but tetanic spasms continued. The daily dosage was increased by increments of 40 to 60 mg. of d-tubocurarine) until 2 cc. of the preparation (350 mg. d-tubocurarine) was given daily. With a dosage of 1.2 cc. the patient was free of spasms and was able to eat and move about. Spasticity tended to increase somewhat after eighteen to twenty-four hours, but convulsions did not recur. Further increase in dosage was continued to secure maximal relaxation and to determine when toxic symptoms might appear. On the eleventh day of therapy, thirteen hours

after intramuscular injection of 2 cc. of the preparation, the patient slipped off a bedpan. In trying to get back into a comfortable position he experienced difficulty in breathing, cyanosis, increased salivation with tracheal obstruction, dysphagia, generalized weakness and tachycardia, but no diplopia. Considerable mucus was aspirated with an intratracheal catheter; he was given oxygen intranasally and in forty-five minutes was apparently no worse for the experience. Treatment with d-tubocurarine in wax and oil was discontinued, with return of moderate, but not troublesome, stiffness of the legs and back the next day. Ten days later, on his twenty-first hospital day, the patient was discharged.

Comment.—This represents a case of generalized tetanus in which treatment for eleven days with d-tubocurarine in wax and oil resulted in gratifying relief of tetanic spasms when the dosage was 1.2 cc. daily. The dosage was increased to secure more adequate muscle relaxation and to determine at what level toxicity might appear. On the second day of a 2 cc. dosage, the patient slipped off a bedpan and experienced severe respiratory difficulty. It was postulated that this reaction was due to inadvertent massage of the injection site with release of a toxic amount of d-tubocurarine rather than to a cumulative effect, because the symptoms subsided rapidly and previously we had observed a decrease in curare effect in this patient eighteen to twenty-four hours after injection. For sedation, we believe that paraldehyde, chloral or ether in oil by rectum are preferable to the phenobarbital sodium given in this case.

CASE 3.—R. W. (fig. 3), a 62 year old white unemployed man, was admitted to the Detroit Receiving Hospital Nov. 7, 1947, because of stiffness of the extremities and back of three days' duration and "locking" of his jaws of six hours' duration. One week before admission he had scraped the base of his left thumb on a cement block. For eight years he had had a varicose ulcer over the external malleolus of the left ankle, for which a saphenous ligation had been done at another hospital two months before the present admission.

Physical Examination.—Physical examination revealed an acutely ill elderly man with stiff neck, rigid back and extremities and moderate spasm of the abdominal muscles. His mouth could not be pried open to remove his false teeth. Maximum interincisor distance was 3 mm. There were no convulsions. The temperature was 100 F., pulse rate 80, respirations 20 and blood pressure 156 systolic and 90 diastolic. There was moderate retinal and peripheral arteriosclerosis. At the base of the left thumb was a healing abrasion, which did not appear infected. Over the external malleolus of the left ankle was a varicose ulcer covered with a thin dirty gray exudate, from which gram-positive spore-bearing bacilli and gram-positive cocci were obtained on smear. Results of physical examination otherwise were not remarkable.

Course.—The patient was given 40,000 international units of antitoxin intrathecally and 60,000 units intravenously, and his wounds were debrided. An additional 110,000 units of antitoxin was administered during the next eleven days. The patient was given 0.6 cc. of d-tubocurarine in wax and oil intramuscularly, with some subjective relief of symptoms in about two hours. The dosage was increased by increments of 0.2 cc. until the amount administered was 2 cc. daily. There was progressive decrease in muscle spasm and increase in the interincisor distance. When the medication was discontinued for one day, however, there was no notable increase in measurable muscle spasm. Two additional doses were given in an attempt to produce electrocardiographic changes. None occurred. The patient was discharged on his thirty-third hospital day.

Comment.—This represents a case of tetanus of moderate severity. The patient was given 3,570 mg. of d-tubocurarine over a period of fourteen days, with relief of painful muscle spasm. For six days he received 2 cc. of the wax-oil mixture (350 mg. d-tubocurarine) daily without toxicity and with no evidence of cumulative effect.

COMMENT

For control of the convulsions and muscle spasm in tetanus many drugs have been employed with only limited success. The disadvantage of sedatives and anesthetics is that, if given in amounts adequate to control convulsions, they interfere with the nutrition and vegetative functions of the patient. Furthermore, some which depress respiration, notably the barbiturates and tribromoethanol solution, have been shown to shorten the life of experimental animals with tetanus.[3]

Treatment with curare, which acts primarily at the motor end plate, avoids these disadvantages. Its desirable relaxant effect permits the patient with tetanus to eat, move, void and defecate, but in our previous experience the aqueous preparation (intocostrin ®)[3a] proved of limited value because of its short action (fifteen minutes to an hour) and its frequent unpleasant side reactions: diplopia, dysphagia, hypersecretion, laryngeal paralysis, respiratory paralysis and occasional drops in blood pressure to shock levels. Administration of aqueous curare by constant intravenous drip as described by West [4] presents almost insurmountable technical difficulties in tetanus patients.

d-Tubocurarine in wax and oil, however, seems to produce a prolonged relaxant effect without many of the unpleasant side reactions of curare. Schlesinger [5] has given 1,500 injections of this preparation in amounts ranging from 0.4 to 2.5 cc. to 200 patients with various spastic conditions. Duration of action in his series varied from twenty-four to one hundred and sixty-eight hours, with longer action in the cases of less severe disease. Duration of action and dosage, in the absence of a method for measuring curare blood levels, must be judged by clinical observation. In our 3 patients with tetanus, the duration of action following doses of 0.6 to 2.0 cc. ranged between eighteen and twenty-four hours or more, but no cumulative effect was noted. The relaxant effect was apparent within one to three hours after injection. The daily maintenance dosage varied between 1.25 cc. for a 38 Kg. boy and 2.0 cc. for an 80 Kg. man. When maintenance doses were reached, the patients were able to eat, move about and defecate and were not stimulated into spasm by examination. On the basis of our experience, we believe it safe to give an initial intramuscular dose calculated on the basis of 3.5 to 4.0 mg. of d-tubocurarine per kilogram of body weight, but not to exceed 2.5 cc. of the preparation. Subsequent dosage must be gaged by clinical response. The objective is to control convulsions and relax spasm without producing muscle paralysis.

Toxic effects were observed in only 1 of our patients (case 2). He experienced difficulty in breathing, increased salivation and cyanosis when he slipped off the bedpan. He was completely relieved by tracheal aspiration and oxygen within an hour. It was thought that he had inadvertently massaged the site of injection, with release of a toxic amount of curare. Because Pearlstein and Weinglass [6] reported that curare has a cardiotoxic effect which precludes its use "for long periods as would be necessary in treatment of tetanus," we made frequent studies of the circulation in our patients. Electrocardiograms taken before, during and after treatment showed no significant changes. The systolic blood pressures fell between 10 and 20 mm.

3. Firor, W. M.; Lamont, A., and Schumacker, H. B., Jr.: Studies on the Cause of Death in Tetanus, Am. J. Surg. **111**: 246-274 (Feb.) 1940.
3a. Weed, M. R.: Unpublished data.
4. West, R.: Intravenous Curarine in the Treatment of Tetanus, Lancet **1**: 12-16 (Jan. 4) 1936.
5. Schlesinger, E. B.: (*a*) The Use of Suspensions of Tubocurarine in Oil in Treatment of Spasticity, Arch. Neurol. & Psychiat. **55**: 530-534 (May) 1946; (*b*) Recent Advances in the Use of Curare in Clinical Practice, Bull. New York Acad. Med. **22**: 520-529 (Oct.) 1946.
6. Pearlstein, M. A., and Weinglass, A.: Fatal Effects of Prolonged Curarization, Am. J. Dis. Child. **67**: 360-364 (May) 1944.

of mercury, but there was no notable change in the pulse rate and no arrhythmias developed. These patients received total doses of d-tubocurarine ranging from 2,485 mg. in eleven days to 3,570 mg. in fourteen days.

Although we encountered no serious toxic reactions, we believe that the same precautions should be observed in treatment with d-tubocurarine in wax and oil as with aqueous curare. This preparation should not be given to myasthenic patients or to patients with renal disease. In addition, the suspension must be shaken vigorously before it is withdrawn from the vial to insure uniform distribution of the d-tubocurarine, the syringe and needle must be kept perfectly dry, and massage of the site of injection must be avoided. Until further experience with this preparation is attained, the patient with tetanus must be watched constantly. Cumulative action may occur, and a laryngoscope, endotracheal tube, aspiration apparatus, neostigmine and oxygen for nasal administration must be available for immediate use.

SUMMARY

Three cases of tetanus in which d-tubocurarine in wax and oil was used for control of convulsions and muscle spasms are reported. In optimum dosage, this preparation produced relief of tetanic muscle spasms without serious side reactions. The duration of action was eighteen to twenty-four hours or more, but in dosages employed no cumulative effect was noted. All of the patients lived. From this experience it is concluded that d-tubocurarine in wax and oil is an effective agent for controlling tetanic muscle spasms and is not unduly dangerous. Precautions in using this preparation are noted.

Clinical Notes, Suggestions and New Instruments

TREATMENT OF RECTAL AND RECTOSIGMOID POLYPS

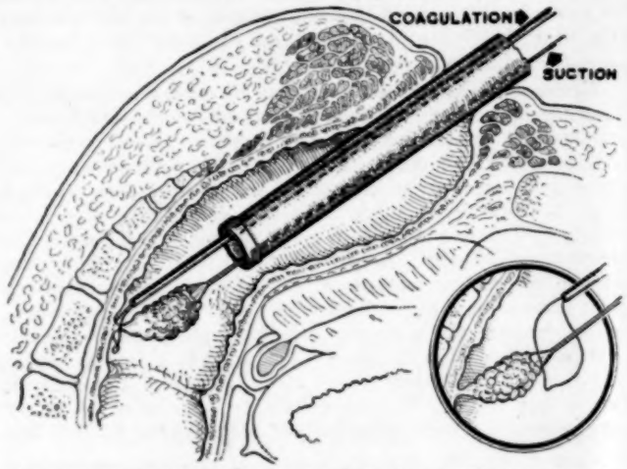
Funnel Tip Suction as an Aid in Their Removal

PAUL C. MORTON, M.D.
New York

The removal of polyps of the upper part of the rectum and rectosigmoid presents technical difficulties of some magnitude if performed through a proctoscope. The proper and complete removal of such a lesion through the anal outlet may give accurate data for proper diagnosis and prognosis and information as to the need for further operation. Piecemeal removal of such lesions should be avoided, because the gross appearance of the polyp, together with sections through the base or pedicle, is most important in determining the proper treatment of the patient.

These lesions can be removed by several technics. David [1] advocated section of the sphincter in the posterior commissure with prolapse of the mucous membrane with the polyp and local excision. Others have approached the lesion through the ischiorectal space with local excision and without sphincter section. Removal through a proctoscope with an electric snare provides a simpler form of treatment for the majority of lesions. The current should be of the coagulating type and of low intensity, so that a slow thorough coagulation of the base will be accomplished. The development of radio tube machines with settings for known depth of coagulation makes such a current available.

The major technical difficulty is in engaging the polyp through the loop snare to secure the pedicle well away from the base of the polyp and in normal tissue. As an aid in controlling the prolapse of the polyp through the loop, a modification of the usual suction tube has been devised. A small funnel tip replaces the standard distal end and side openings. The instrument also has finger tip control of suction through an opening in the tube at the proximal end. This allows control of suction by the operator. This instrument is introduced into the proctoscope after the coagulating snare is placed near the polyp. The funnel suction tip is introduced through the wire snare and engages



Drawing illustrating the technic described. Insert: The funnel suction tip is introduced through the wire snare and engages the polyp.

the polyp (insert at lower right hand corner of the figure). This gives strong but gentle and bloodless traction. The pedicle can then be put on the stretch and the wire loop pulled down on the pedicle at a safe distance from the base (figure). The coagulating current is now applied, and the wire snare is slowly tightened, with removal of the polyp. It must be emphasized that this instrument is useful only to prolapse the polyp through the snare and insure removal through normal tissue. Strong traction of a lesion above the peritoneal reflection is dangerous and may lead to a perforation of the sigmoid.

The funnel suction has been helpful in establishing the fixation and mobility of questionable lesions. When the tumor is engaged in the funnel one can determine whether there is a broad firm fixed base or a freely mobile polyp with a pedicle. Patients in whom polyps above the peritoneal reflection have been removed are hospitalized for from three to five days. No anesthesia is necessary.

The following suggestions will lead to fewer technical difficulties in this procedure:

1. The inverted position on a standard rectal table or the prone position with hips elevated and shoulders and legs depressed should be used wherever possible.

2. A large diameter proctoscope should be used; a 1-inch (2.5 cm.) proctoscope is preferable to a ⅞ inch (2.2 cm.) instrument.

3. The suction funnel must have a lumen of sufficient diameter to permit good suction and to allow passage of small pieces of tissue which may break away from the polyp, thus plugging the tube and preventing suction.

4. It is essential to have adequate assistance to hold the proctoscope in position and to hand to, and take from, the operator the various instruments which are being used.

5. Adequate and reliable suction equipment must be used with the suction funnel.

The funnel tip suction can be made in any hospital engine room. The following specifications have given the most practical instrument: (1) copper tubing with 3 mm. inside and 5 mm. outside diameter, (2) length 44 cm. and (3) funnel tip 1 cm. in diameter.

SUMMARY

A suction funnel for grasping and manipulating rectal and rectosigmoid polyps is described. Its use will facilitate the complete and safe removal of high rectal and rectosigmoid polyps through the proctoscope.

From the Surgical Service, St. Luke's Hospital, New York.

1. David, V. C.: The Management of Polyp Occurring in Rectum and Colon, Surgery 14:387-394 (Sept.) 1943.

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THE PHYSIOLOGIC EFFECTS OF HEAT

KHALIL G. WAKIM, M.D.
Rochester, Minn.

Before the physiologic effects of heat are discussed it would be instructive to consider the factors constituting the physiologic background for the regulation and maintenance of body temperature. This will afford a scientific basis for the dynamic stability of body temperature and indicate the modus operandi of the various factors taking part in regulation of temperature and in production of the physiologic effects.

NORMAL RANGE OF BODY TEMPERATURE

The temperature of the human body, in health, remains remarkably constant under conditions of extremely varying heat production and heat loss. The normal range of body temperature as determined by a thermometer placed in the mouth is between 96.7 and 99 F. The average is about 98.6 F. (37 C.). The rectal temperature is about 1 F. higher (97.2 to 99.5 F.) and the axillary about 1 F. lower than the oral temperature. Rectal temperature is the highest and most reliable. The temperature taken in the axilla or the groin is inaccurate, especially in thin subjects. Oral temperature is liable to variations from local conditions; for example, it is lowered by evaporation of sweat or contact with cold air. Hot drinks may raise the oral temperature. Activity of the muscles of mastication with the consequent increase of blood flow through them raises the oral temperature. This liability to variation makes oral temperature less reliable than rectal. The temperature of internal organs is about 2 or 3 F. higher than the temperature of the skin.

Diurnal Variations.—Variations in the body temperature occur in the same person throughout the day. The temperature of the average person is lowest about 4 a. m. and highest between 4 and 7 p. m. This normal variation is due to the degree of muscular activity which occurs during the day. A reversal of the ordinary daily routine, as in night workers, reverses the temperature curve. During sleep the temperature falls because of bodily inactivity and diminished control of the temperature-regulating mechanism, which shows itself in vasodilatation of cutaneous vessels. This is the reason why one chills easily during sleep. During severe exercise the temperature may rise to 39 or 40 C. (102.2 or 104 F.). This rise is proportional to the exertion and is due to the heat liberated by the active muscles. It is not accompanied by any ill effects or feeling of discomfort. It helps to increase the breathing and the pulse rate and facilitates the dissociation of oxyhemoglobin in the tissues. The body temperature may fall to 36 or 36.5 C. (96.8 or 97.7 F.) in the early stages of prolonged exposure to extremely cold weather. People shiver reflexly during such exposures and produce sufficient energy to maintain a body temperature within normal range.

Professor of Physiology, Mayo Foundation, and Consultant in Section on Physiology, Mayo Clinic.

The body temperature has been known to fall to 24 C. (75.2 F.) and to rise to more than 45 C. (113 F.) without fatal effects; these are probably the limits compatible with subsequent recovery.

Age Variations.—The temperature in infants is irregular at first, but periodicity gradually sets in with the development of regular periods of activity and rest. Heat regulation in very early life is imperfect. A fit of screaming causes a rise; a cold bath may lower the temperature by 7 F.

In persons of advanced age the temperature is usually subnormal. The body is less active, the circulation is feeble and there is less power of accommodation for changes in external temperature. Persons of this group tend to suffer in extremes of temperature.

THE REGULATION OF BODY TEMPERATURE

The temperature of warm-blooded animals remains practically unchanged, though the surrounding temperature varies between 0 F. or below and 100 F. or above. Mammals and birds possess efficient mechanisms for maintaining a constant body temperature against extreme changes in environmental temperatures. They are called homothermic animals. On the other hand, the body temperature of cold-blooded animals, such as the frog and turtle, is practically that of the environment. These are called poikilothermic animals.

The body temperature of man represents the balance struck by the heat produced by the tissues plus heat obtained from warmed food and the heat dissipated into the environment. Temperature regulation is effected by balancing heat production against heat loss. Heat production is the result of chemical reactions; heat loss is dependent on physical factors; they are therefore designated respectively as chemical and physical regulations of the body temperature.

Avenues of Heat Loss.—Heat is lost from the body by several ways:

1. Radiation, Convection and Conduction: The loss of heat by these means varies (*a*) with the environmental temperature; (*b*) in man, with the nature and amount of clothing, and (*c*) with the metabolic activity and the quantity of heat produced within the body.

The cooling of warm objects varies with the temperature of the air and neighboring objects. Warm objects lose heat rapidly through radiation, conduction and convection into the surrounding cooler environment. The rate of heat loss gradually decreases as the temperature of the object approaches that of the surroundings. Certain factors operate to encourage or minimize heat loss in the living body, depending on whether the environmental temperature is high or low: (*a*) Redistribution of blood is an important factor. The superficial blood vessels in the subcutaneous tissues and skin dilate or constrict and through the diversion of blood from the visceral regions to the surface of the body or from the surface to the internal organs, heat loss is correspondingly facilitated or hindered. (*b*) Alterations of blood volume [1] also play a role. A rise of body temperature leads to augmentation of blood volume. Two factors are concerned in the increase of the blood volume which follows a rise of environmental temperature: (1) contraction of the spleen, whereby whole blood is discharged into the general circulation;

1. Barcroft, J.; Meakins, J. C.; Davies, H. W.; Scott, J. M. D., and Fetter, W. J.: Phil. Tr. Roy. Soc., London, s.B **211**: 455, 1922.

(2) dilution of the blood, by water drawn from the tissues to augment the circulating fluid. The fluid drawn into the circulation is mainly from the skin, muscles and liver. At low temperature, for example, during exposure to cold, the blood volume is reduced and the blood becomes more concentrated, as shown by an increase in the percentage of blood solids. It is not altogether clear by what means this movement of water is brought about. However, there is evidence [2] of a nervous element (vasomotor nerves) in the mechanism. It has been demonstrated that after section of the spinal cord in the lower cervical region concentration of the blood does not occur when the animal is placed in a cold bath; the body temperature falls. However, if a normal animal is exposed to cold, the blood becomes concentrated and the body temperature does not change. Cold applied locally after section of the splanchnic nerves causes anhydremia as a result of the transudation of water into the skin of the cooled region. The migration of water is attributed to constriction of the cutaneous arterioles and consequent slowing of the capillary blood flow, which, in turn, apparently through oxygen lack, increases the permeability of the capillary wall. It is probable, therefore, that exposure to cold induces blood concentration through both central and direct peripheral effects. These changes of blood volume are of paramount importance in the regulation of body temperature. (*c*) Increased cardiac output is a third factor. Environmental temperatures above 30 C. (86 F.) produce moderate increase in minute cardiac output (5 to 30 per cent increase).

The rate of conduction of heat through the subcutaneous tissues to the skin varies considerably in different persons owing to the presence of varying quantities of fat. Fat serves to insulate the body from heat loss. Obese persons, therefore, become more easily overheated when, as in muscular exercise, heat production is increased; for the same reason they are better able to resist low temperatures.

Radiation, convection and conduction are influenced by the humidity of the atmosphere as well as by its temperature. Water vapor is less dense than dry air, and warm air than cool air. A layer of warm air saturated with moisture covers the surface of the clothed body. Convection currents are, therefore, set up between it and the surrounding atmosphere when this is cool and has a low water vapor content. When the surrounding air is nearly saturated with moisture (high relative humidity), as on close summer days or in a room crowded with people, loss by convection is reduced to a minimum. Wind also serves to remove the warm layer of air next to the skin and replace it with cooler air, thus increasing heat loss. Humid air is more opaque to radiant energy than dry air. A high water content of the atmosphere, therefore, also reduces heat loss by radiation. Dry air at a temperature much above body temperature may not cause a rise in the latter because the heat lost through evaporation may equal that gained by radiation and conduction, as well as that produced by metabolism. High environmental temperature will increase total metabolism by causing an actual rise of the temperature of the tissues and a greater velocity of their chemical reactions.

2. Barbour, H. G.: Physiol. Rev. **1**: 295, 1921; Am. J. Physiol. **67**: 366, 1924. Barbour, H. G., and Tolstoi, E.: ibid. **67**: 378, 1924. Barbour, H. G., and Hamilton, W. F.: ibid. **73**: 315 and 665, 1925.

2. The Role of Evaporation in Temperature Regulation: The amount of heat lost from the body by radiation, conduction and convection is lowest whenever the temperature of the environment is close to that of the body. In fact, heat loss by these avenues ceases when the environmental temperature approaches 99 F. If the environmental temperature rises above body temperature, in the absence of other means of cooling, the body is bound to gain heat. When, under such circumstances, radiation, conduction and convection are no longer adequate to prevent increase of body temperature, vaporization becomes the important means for heat loss through the skin. Vaporization is the avenue for the entire heat loss of a naked man lying quietly in an environment at 34.5 C (94.1 F.) and covered with sweat.

To change water from the liquid to the gaseous state (vaporization) involves the loss of heat from the surrounding material, including the water itself. This heat is called the heat of vaporization. Evaporation is a cooling process. The heat absorbed in the vaporization of 1 cc. of sweat amounts to 0.58 calory.

There is a certain small amount of water in man which is lost in amounts of about 30 to 50 cc. per hour from the respiratory membranes and skin because they are moist; this is known as insensible water loss, to distinguish it from sensible perspiration (sweat). Persons born without sweat glands vaporize the same amount of water as normal persons [3] under basal conditions. In the absence of activity of the sweat glands the surface of the avascular epidermis is moistened by extravascular fluid originating from the capillary loops of the dermal papillae. Even at ordinary room temperature when no perspiration is obvious, heat loss through evaporation from the skin and lungs amounts to about 25 per cent of the total heat loss. When the environmental temperature rises, or heat production in the body increases, the respiratory rate increases, and the heat lost through warming the inhaled air is thereby augmented.

The relative humidity of the air, that is, the degree to which the atmosphere is already saturated with moisture, has an inverse influence on the rate of evaporation of water. Sweat which simply drips from the skin without evaporating does not increase heat loss. This is the basis for the crippling of heat elimination by sweat when the relative humidity is high. It is common experience that one feels hotter and suffers more discomfort in a hot and humid atmosphere than in one that is hot and dry.

The following are additional minor avenues for heat loss:

3. The Warming of Inspired Air to Body Temperature: The amount of heat lost in this manner depends on the temperature of inhaled air. At the usual room temperature it amounts to only about 3 per cent of the total heat loss.

4. Liberation of Carbon Dioxide from Solution in the Blood into the Gaseous State in the Lungs: This process involves the absorption of heat, but it contributes only about 4 per cent of the total heat loss.

5. The Heat Lost in the Excreta (Urine and Feces): This amounts to only about 1 to 2 per cent of the total.

3. Loewy, A., and Wechselmann, W.: Virchows Arch. f. path. Anat. **206**: 79, 1911.

Temperature Regulation by Altering Heat Production.—The production of heat goes on continuously in all tissues in order to supply the resting energy requirements. Heat production occurs mainly in skeletal muscles where exothermic chemical reactions, oxidative and nonoxidative, are continuously going on. The heart contributes some heat. All mechanical energy liberated by cardiac muscle is converted within the body into heat. The liver and kidneys, wherein numerous chemical reactions are performed, also are good sources of body heat. Tonic contractions of muscles even at rest add to the basal heat in the body. When more heat is required, the muscles become tense owing to an increase in tone. In answer to the question whether an increase in the tone of the skeletal musculature, below the stage of shivering, plays a part in chemical regulation of body temperature, Burton and Bronk [4] obtained objective evidence of the occurrence of a true "thermal muscular tone" by studying the action currents of muscle. This increase of tone began with the first sign of rise in metabolic rate. Shivering appeared later on when coordinated intermittent firing of motor units occurred. One of the most potent conditions that bring about an increase of heat production is a low environmental temperature. On exposure to a cold environment the metabolism rises. This is effected through the increase of tone of the skeletal musculature and the involuntary contractions in the form of shivering and chattering of the teeth. Paralysis of the skeletal muscles by curare leads to inability to maintain a normal body temperature in a cold environment. However, because the physical mechanisms of control remain intact, high environmental temperature can be resisted. Transverse section of the spinal cord at the level of the sixth cervical segment abolishes both the chemical and the physical regulation, at least until lower centers take over and a few of the mechanisms, especially physical, recover partially. Pilomotor muscles contract, causing "goose flesh," which is a vestige in man of the mechanism causing the ruffling of the hair or feathers in other mammals and birds to entrap a thicker layer of air.

The specific dynamic action of foodstuffs, especially proteins, sets free a certain amount of heat in the body. Protein food is an important factor in the chemical regulation of body temperature. In cold climates the per capita consumption of protein food is much greater than in the tropics. In winter one is more inclined to eat foods with high specific dynamic action than in the summer. At high environmental temperatures the physical mechanisms which hasten heat loss are counteracted by the specific dynamic action of food. This is why a low protein diet is more suitable for hot weather.

The Relative Importance of Chemical and Physical Means of Temperature Regulation.—When the environmental temperature is close to that of the body, both physical and chemical regulation of body temperature are least active. As the environmental temperature falls, physical regulation alone will suffice to maintain body temperature at first, but with greater reduction of environmental temperature chemical regulation will also become active. Du Bois [5] reported that the basal metabolism of a naked man in a calorimeter is surprisingly level in an environmental temperature between 22.7 and 34.5 C. (72.9 and 94.1 F.). This suggests that by adjusting heat loss alone man has an effective means of maintaining a constant temperature over an environmental range of 23 to 35 C. (73.4 to 95 F.).

Nerve Centers Regulating Temperature.—The reactions that take part in the maintenance of thermal equilibrium are under control of the central nervous system. Both the somatic motor and the visceral motor neurons take part in this control. The somatic motor fibers produce panting by activating the respiratory muscles, and shivering by activating the muscles of the trunk and extremities. The visceral motor neurons of the autonomic nervous system activate the erector pili muscles of the hair follicles and the sweat glands, and control the caliber of the cutaneous blood vessels. Sympathectomy eliminates passage of sympathetic impulses to cutaneous vessels, erector pili muscles and sweat glands and renders the animal extremely susceptible to cold.

The Role of the Hypothalamus.—The hypothalamus integrates the reactions responsible for thermal equilibrium. Through its influence on the somatic and visceral motor neurons, the hypothalamus functions as a physiologic thermostat and changes the rate of heat production and heat loss according to the thermal status and requirements of the body. Experimental evidence [6] indicates that the anterior portion of the hypothalamus is responsible for the prevention of hyperthermia when the body is exposed to warm environment. This is performed through panting, sweating and cutaneous vasodilatation, which increase heat loss and prevent overheating of the body. The application of cold to the hypothalamus causes a rise, and heating it a fall in the temperature of the body. Barbour [2] showed that application of cold to the hypothalamus caused vasoconstriction in the rabbit's ear. Stimulation of the hypothalamus caused sweating. In the normal state the heat-regulating centers are influenced (*a*) by the temperature of the blood flowing through them and (*b*) reflexly from the skin. The production of bilateral lesions in the anterior portion of the lateral hypothalamic area leads to fatal hyperthermia because of failure of the heat-dissipating mechanisms. Lesions of the posterior portion of the hypothalamus will, furthermore, lead to inability to maintain a body temperature within normal range on exposure to a cold environment. Such observations led to the conclusion that in the normal state the anterior portion of the hypothalamus is responsible for protection against a hot environment and the posterior portion is responsible for protection against a cold environment.

It is possible that the endocrine glands, specifically the thyroid and adrenal glands, play some role in the thermoregulatory mechanisms. The body temperature tends to be subnormal after experimental adrenalectomy or thyroidectomy. Also, in Addison's disease and in cretinism body temperature is subnormal. Serum taken from animals exposed to severe cold causes a rise of metabolic rate when administered to other animals. Exposure to cold increases the rate of the denervated

4. Burton, A. C.: Temperature Regulation, in Luck, J. M., and Hall, V. E.: Annual Review of Physiology, Stanford University, Calif., Annual Reviews, Inc., 1939, vol. 1, pp. 109-130. Burton, A. C., and Bronk, D. W.: Am. J. Physiol. **119**: 284, 1937.

5. Du Bois, E. F.: The Mechanism of Heat Loss and Temperature Regulation, Lane Medical Lectures, Stanford University, Calif., Stanford University Press, 1937, vol. 3, no. 4.

6. Clark, G.; Magoun, H. W., and Ranson, S. W.: J. Neurophysiol. **2**: 61 and 202, 1939. Keller, A. D.: ibid. **1**: 543, 1938. Keller, A. D., and Hare, W. K.: Proc. Soc. Exper. Biol. & Med. **29**: 1067 and 1069, 1932. Ranson, S. W.: A. Research Nerv. & Ment. Dis., Proc. (1939) **20**: 342, 1940.

heart. Prolonged exposure to cold produces hyperplasia of the thyroid gland and increased activity of the adrenals. The hormones liberated by the thyroid and adrenals participate in the catabolic processes which produce extra heat during exposure to cold. Hartman and Hartman [7] and Cannon and his associates [8] reported evidence of the influence of the adrenals on metabolism in response to cold through the increase in output of epinephrine. The adrenotropic and thyrotropic hormones of the anterior pituitary stimulate the thyroid and adrenals during prolonged sojourn in a cold environment and take part in the thermal adjustments, causing effective resistance against cold.

TYPES OF HYPERTHERMIA

According to the French physiologist Richet,[9] the various types of hyperthermia may be classified into two important groups: (1) passive fever, which is undergone by the organism, and (2) active fever, which is aroused by the organism. Hot baths, long wave diathermy, short wave diathermy, the Kettering hypertherm (hot humid air) and luminous and nonluminous heat cabinets are included among the means of inducing passive fever. Under such conditions the body does not make any effort to raise its own temperature. Effort is exerted to become cooler; in other words, the heat-eliminating mechanisms usually are put into action.

Active fever is aroused by the organism and may be induced by injection of foreign proteins, malarial parasites, typhoid vaccine or some colloidal substances. In this type of fever, the organism makes an effort to raise its own temperature and the cells are active in producing it. The cells have been stimulated either directly, or indirectly through the nervous system. This is an endogenous febrile reaction. Accompanying the active fever induced by foreign proteins or by typhoid vaccine administered intravenously, the manifestations of shock usually appear, whereas with the passive fever induced by physical means there are no manifestations of shock.

Chronologically the phases of the febrile reaction produced by intravenous administration of typhoid vaccine can be arranged as follows: (1) prodromal phase, (2) chill phase, (3) flush phase and (4) defervescence phase.

Some of the more important signs and symptoms of these phases are the following: 1. During the prodromal phase yawning, stretching, general malaise, abdominal unrest, nausea, chilliness, pallor and weakness with some headache usually appear. Altschule and Freedberg [10] stated that during the prodromal phase of an endogenous febrile reaction no significant physiologic or chemical alterations can be observed but the chill phase is characterized by a sympathetic discharge leading to marked generalized vasoconstriction which causes circulatory stasis of variable degrees. 2. During the chill phase there is a general increase of muscle tone and a definite feeling of cold with shivering, chattering of teeth, severe pallor, cyanosis, low cutaneous temperature and rising body temperature. Johnson and associates [11] reported that the spasm of cutaneous blood vessels during the chill was due to activity of the sympathetic system and that in sympathectomized limbs there was no spasm of the cutaneous vessels during a chill caused by injection of typhoid vaccine. 3. During the flush phase there is a general feeling of warmth and relaxation with congestion, redness, sweating and high cutaneous and internal temperatures. 4. During the defervescence phase there occurs a gradual diminution of congestion, redness and body temperature.

The following are some of the salient characteristics of hyperthermia produced by physical means: The prodromal phase and its manifestations are absent; the chill phase and its manifestations are absent; the flush phase develops gradually from the onset with consistent increase of blood flow, and defervescence usually sets in as soon as the physical agent used as a source of heat is discontinued.

The beneficial effects obtained from the induction of hyperthermia are not necessarily due to the fever per se, for certain treatments have helped without elevation of body temperature. This has led to the use of the expression "pyrotherapy without fever." Furthermore, a patient may have a very high temperature and yet get no benefit from it. If it should ever be proved that the benefit derived from pyrotherapy is due to the fever per se, then the hyperthermia produced by physical means would be the method of choice, because, as mentioned previously, this type of fever is associated neither with prodromas nor with chills and the manifestation of shock.

Why does fever occur in the organism? In general, it can be definitely stated that fever occurs as a result of imbalance of the heat-producing and heat-eliminating mechanisms. If heat loss is reduced or if heat production is increased without an accompanying increase of heat elimination, a rise of body temperature is bound to occur. Hardy [12] stated that a normally functioning heat-eliminating mechanism can rid the body of excess heat up to twelve times the basal heat production. If this heat were conserved, it would suffice to raise the temperature of the body to 50 C. (122 F.) in thirty-five minutes. A relatively small increase of heat production, if associated with a large reduction of heat loss, such as occurs in malarial chills, can produce very high temperature. This shows that in the development of fever the mechanism of heat loss is as important as that of heat production. Fever can be easily induced by hot baths, by hypertherm cabinets (hot humid air) or by luminous and nonluminous heat cabinets because, under such conditions, the body is unable to use the skin to eliminate its heat as it normally does. As mentioned previously, the fever produced by such physical agents is neither ushered in by a prodromal phase nor preceded or followed by chills. Furthermore, the flush phase of this type of fever is associated with extreme vasodilatation. In fact, the pink color of the skin all over the body is a prominent feature of fever induced by physical means.

SYSTEMIC EFFECTS OF HEAT

Changes in body temperature, whether as a result of severe environmental variations or of infectious, metabolic or toxic agents, produce more or less profound effects on the various biologic processes within the

7. Hartman, F. A., and Hartman, W. B.: Am. J. Physiol. **65**: 612, 1923.

8. Cannon, W. B.; Querido, A.; Britton, S. W., and Bright, E. M.: Am. J. Physiol. **79**: 466, 1927.

9. Richet, C., Jr.: Posology of Therapeutic Fever, in Simpson, W. M., and Bierman, W.: Fever Therapy: Abstracts and Discussions of Papers Presented at the First International Conference on Fever Therapy, New York, Paul B. Hoeber, Inc., 1937, pp. 18-20.

10. Altschule, M. D., and Freedberg, A. S.: Medicine **24**: 403, 1945.

11. Johnson, C. A.; Osborne, S., and Scupham, G.: Am. J. M. Sc. **190**: 485, 1935.

12. Hardy, J. D.: Mechanism of Heat Loss from the Human Body, in Simpson, W. M., and Bierman, W.: Fever Therapy: Abstracts and Discussions of Papers Presented at the First International Conference on Fever Therapy, New York, Paul B. Hoeber, Inc., 1937, pp. 16-17.

body. As has been stated in the preceding discussion, the heat to which the body reacts may have its origin in extrinsic factors or internally from metabolic processes. For clarity the physiologic effects of heat will be considered in relation to the body systems with which they are connected.

Effects on Blood Cells.—McCutcheon [13] noted that the rate of locomotion of leukocytes was affected by temperature in a manner similar to that of a chemical reaction; the maximal rate was reached at 40 C. (104 F.). Madsen and Wulff [14] observed that the normal blood temperature was the optimal temperature for phagocytosis. Krusen [15] studied the blood picture before and after artificial fever at temperatures of 104 to 106.8 F. (40 to 41.6 C.) and obtained an average increase of leukocytes from 7,125 per cubic millimeter of blood before fever to 11,269 after fever. After the fever there was a relative increase of neutrophils and a relative decrease of lymphocytes. Hargraves and Doan [16] observed a characteristic postfebrile leukocytosis which was so constant that they felt justified in designating it as the "febrile hemogram." They found that the peak of leukocytosis, reaching about 40,000 leukocytes or more per cubic millimeter of blood, occurred usually several hours after the cessation of fever. It is believed that artificial hyperthermia induced by physical means exerts an effective mobilization of body defenses against disease.

Effects on the Cardiovascular System.—The ability to withstand high environmental temperature is a good index of a properly functioning cardiovascular system. It is common experience that, during a hot spell, fainting, collapse and even death are often the lot of those with poor cardiovascular reserve. The effects of heat on the cardiovascular system can be classified as cardiac and vascular. The cardiac effects during hyperpyrexia include a disappearance of the common sinus arrhythmia and its replacement by regular cardiac rhythm. The electrocardiographic changes induced by fever are variable and inconsistent. The P-R interval, that is, the conduction time between the atria and ventricles, is shortened during fever.

Heart Rate: Within physiologic limits, the rate of generation and the speed of propagation of impulses are increased under the influence of agents that raise the temperature of the body. This means that a greater number of impulses are traveling to the various organs of the heated body. When a general rise in temperature of the body is produced from heating, the result is an increase in the rate of the heart beat. When a general rise in temperature of the body takes place, the metabolic activity of the pacemaker of the heart (sinoauricular node) is augmented and the initiation and rate of passage of the cardiac impulses along the conductive system are increased. Consequently the heart speeds up under the influence of heat.

It has been observed [17] that in artificially produced fever the pulse rate rises more or less proportionately to the rise in body temperature, in the ratio of about 10 beats for 1 F., much as it does in naturally occurring fever. In our studies on the effects of artificial fever, my colleagues and I obtained an average increase of 10.5 heart beats per minute for every rise of 1 F. in arthritic patients. Hill and Flack [18] obtained a mean increase in pulse rate of 44 beats per minute for a rise of 2.4 C. (4.3 F.) in rectal temperature. Bazett [17a] found with similar baths a mean increase of 37 beats per minute for a rise of 2 C. (3.6 F.).

Cardiac Output: From his study of the pulse curve by the use of the tachogram method, Bornstein [19] concluded that the output of the heart per minute was increased by hot and cold baths; the hot baths increased the heart rate but decreased the stroke volume, while the cold produced the reverse combination. Baths of less than 40 C. (104 F.) cause little change in cardiac output because the decrease in stroke volume is balanced by the increase in pulse rate.[20] Heymans [21] observed with administration of warmth an increased cardiac output too great to be accounted for only by an increase in heart rate; an increase in stroke volume was indicated.

Blood Pressure: The effects of external heat and hyperthermia on the blood pressure are varied.[22] In general it can be stated that external heat in most forms tends to lower the blood pressure and cold tends to raise it. Bazett [17a] noted, however, that a bath of more than 40 C. (104 F.) may give a blood pressure above normal while a cold bath may occasionally induce a temporary fall followed by a rise. In our studies [23] on artificial fever by the use of tub baths the effects on blood pressure were variable. Of the 15 subjects, the systolic pressure showed some rise in 4 subjects, a slight fall in 6 and no change in 5. In 11 subjects there was some fall of the diastolic pressure, in 2 there was no change and in the remaining 2 there was a slight rise. Similarly, the changes in blood pressure as a result of fever induced by the Kettering hypertherm were as follows: Of the 15 subjects studied, 5 showed some rise in systolic blood pressure, 3 showed no change and the remaining 7 showed a slight fall. In all subjects there was a fall of diastolic blood pressure with the exception of 1, in whom no change in diastolic pressure occurred.

The changes in blood pressure occur as a result of interaction of alterations in cardiac output and vasomotor reactions. The rise of blood pressure during exposure to cold is due to increase of cardiac output and to vasoconstriction in the superficial areas of the body. The varying response of blood pressure to warmth is dependent on the degree of vasodilatation, on the degree of alteration in heart rate, on the cardiac output per stroke and per minute and on the pulse pressure. The position of the subject influences venous return and consequently the blood pressure and the differential distribution of the blood to the various parts of the body.

Vascular Tree: In general, it can be stated that heat, no matter from what source, influences the vascular tree in several ways.

1. Axon reflex. The thermal stimulation of sensory receptors in the skin may bring about vasodilatation through the axon reflex.[24] Since the passage of these

13. McCutcheon, M.: Am. J. Physiol. **66**: 185, 1923.
14. Madsen, T., and Wulff, O.: Physiol. Abstr. **3**: 224, 1918.
15. Krusen, F. H.: Am. J. M. Sc. **193**: 470, 1937.
16. Hargraves, M. M., and Doan, C. A., in Abstracts of Papers and Discussions at the Fifth Annual Fever Conference, May 2 and 3, 1935, vols. 1-5, p. 51.
17. (*a*) Bazett, H. C.: Am. J. Physiol. **70**: 412, 1924. (*b*) Adolph, E. F., and Fulton, W. B.: ibid. **67**: 573, 1924.
18. Hill, L., and Flack, M.: J. Physiol. **37**: 77, 1908.
19. Bornstein, A.: Ztschr. f. exper. Path. u. Therap. **9**: 382, 1911.
20. Schapals, F.: Ztschr. f. exper. Path. u. Therap. **10**: 222, 1912.
21. Heymans, J. F.: Arch. internat. de pharmacol. **25**: 1, 1919.
22. Pemberton, R.: Ann. Clin. Med. **5**: 763, 1927.
23. Wakim, K. G.; Krusen, F. H., and Elkins, E. C.: Arch. Phys. Med. **29**: 274, 1948.
24. Langley, J. N.: J. Physiol. **25**: 364, 1900.

impulses is away from the central nervous system, rather than toward it, as is usually expected to take place along sensory nerve fibers, Bayliss [25] called them "antidromic impulses." Axon reflexes play an important role in the cutaneous vasodilatation observed in subjects exposed to heat. Furthermore, the sympathetic nerves are believed to contain vasodilator fibers. While perfusing the hind limbs of dogs, Burn [26] frequently obtained vasodilatation on stimulation of the lumbar sympathetic chain. He suggested the presence of a general system of vasodilator fibers. Lewis and Pickering [27] presented evidence supporting the existence of sympathetic vasodilator fibers in man. This, however, was denied by Uprus and associates.[28]

2. Metabolites. The metabolites liberated in the tissues act as direct vasodilators. Heat increases the speed of chemical reactions occurring in the living organism. The metabolites, liberated at a great rate under the influence of heat, exert their well known direct chemical vasodilator effect on the small vessel bed throughout the body. This brings about two definite effects; namely, (*a*) an increase in the caliber of the blood vessels and (*b*) an increase in the number of patent vessels; that is, under the influence of heat, new vascular channels are widely opened up in addition to the dilatation of those already patent.

3. Vasodilatation from central effects. With a general rise in temperature of the body, the warmed blood circulating through the heat-regulating centers in the hypothalamus will bring about a discharge of impulses to increase the dissipation of heat. Consequently, a generalized vasodilatation is produced and heat loss is increased by radiation, conduction and convection through the skin. The pinkish skin after exposure to microwaves, diathermy, hot baths or any other source of heat is a manifestation of this generalized cutaneous vasodilatation brought about by local and central mechanisms.

Respiration.—The respiratory rate in man is increased with hyperthermia. Sutton [29] reported an increase of 5 to 6 respirations per minute per degree increase in rectal temperature. If the rise of temperature is rapid, definite hyperpnea with deep respiration is observed and a real sensation of air hunger is experienced. The hyperpnea causes a marked fall in alveolar carbon dioxide tension.[30]

The fall in alveolar carbon dioxide tension is accompanied by alkalosis.[31] Landis and associates [30c] reported rises in p_H of the blood plasma varying between 0.12 and 0.33 during experiments with hot baths. The large volumes of carbon dioxide given off as a result of the hyperpnea would increase the respiratory quotient often much above unity. Koehler [31] has shown a maintained alkalosis in febrile patients. The rise of temperature increases the metabolism and lowers the threshold of the respiratory center.

Sweat Secretion.—An important effect of the application of heat to the body is the profuse sweating that takes place during and for some time after the application of heat. Since the skin in man is the most important accessory channel, next to the kidneys, for the elimination of water, salt and certain other [32] constituents (urea, uric acid, creatinine, phosphates and sulfates), the idea of elimination through the skin by application of heat has been widespread. This constitutes the rationale for the long-standing use of the sweating procedure for the nephritides with edema and retention of blood urea and other nitrogenous products. The value of this therapeutic measure in the elimination of salt and water is accepted, but the compensatory excretion of nitrogenous products by way of the sweat glands is doubted.[33] Pemberton [34] stated that, in nephritic conditions accompanied by pronounced evidences from laboratory tests of retention of nitrogen, or by clinical evidences which suggest the toxemia consequent on such retention, the sweating process is to be considered. He and his associates [35] reported that in conditions accompanied by retention of blood nitrogen the sweat may contain nitrogen in amounts larger than normal. In his study of the control of sweating in normal men, Robinson [36] noted that the rectal temperature and rate of sweating increased with increments in work intensity up to values averaging 38.5 C. (101.3 F.) and 850 Gm. per hour in the hardest work. Since the cutaneous temperature was constant in these experiments, he concluded that the increased sweating must have depended on a direct effect of internal temperature on the heat-regulating center and possibly also on stimulation of the center by the increased neuromuscular activity. When the work was kept constant but the effective temperature was varied in another group of experiments, the average cutaneous temperature and rate of sweating increased directly with increasing effective temperature in this range, varying from 28 to 36 C. (82.4 to 96.8 F.) and from 50 to 1,500 Gm. per hour respectively. In this latter group of experiments the stimulus for increased sweating was considered to be dependent entirely on reflexes from the skin.

EFFECTS OF EXCESSIVE HEAT

When exposure to extremely high environmental temperature is sufficiently prolonged, the effects of heat may be so severe that certain crippling clinical states may develop. Among these, three merit differentiation [37]; namely, (1) heat cramps, (2) heat prostration or heat exhaustion and (3) heat hyperpyrexia or heat stroke.

Ill health, in the form of a full-blown chronic organic disease, inadequate sleep, excessive fatigue, senescence, inadequate supply of sodium chloride, dehydration and alcoholism, is an important factor predisposing to the untoward effects of heat.

Heat Cramps.—Heat cramps constitute a syndrome associated with painful tonic and clonic spasms after prolonged exertion in a hot environment. This syn-

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30. (*a*) Bazett.[17a] (*b*) Bazett, H. C., and Haldane, J. B. S.: J. Physiol. **55**: iv, 1921. (*c*) Landis, E. M.; Long, W. L.; Dunn, J. W.; Jackson, C. L., and Meyer, U.: Am. J. Physiol. **76**: 35, 1926.
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36. Robinson, S.: Federation Proc. **6**: 190, 1947.
37. Talbott, J. H.: Medicine **14**: 323, 1935. Talbott, J. H., in Glasser, O.: Medical Physics, Chicago, The Year Book Publishers, Inc., 1944, p. 588. Lee, D. H. K.: Tr. Roy. Soc. Trop. Med. & Hyg. **29**: 7, 1935.

drome is also recognized as miner's cramps, fireman's cramps and stoker's cramps, commonly appearing in those who labor in the heat of fire rooms, especially if one or more of the predisposing factors is coexistent. Maximal susceptibility is in the first few days before acclimatization is established.

The symptoms of heat cramps develop after a period of muscular twitching. The patient is seized with violent, painful spasms associated with abdominal colic, nausea, vomiting and diarrhea. He becomes stuporous, pallid and covered with sweat. Respiration is embarrassed by intercostal and diaphragmatic spasms giving a picture of mild tetany. The pulse is rapid but strong, and the temperature is slightly above normal. The leukocyte count is elevated; there is hemoconcentration from dehydration with a consequent rise in the erythrocyte count and the plasma proteins. Serum sodium and chloride are low. Sometimes acidosis appears, owing to depletion of fixed base from the body rather than to accumulation of fixed acids. The amount of urine is scanty and the excretion of sodium and chloride in the urine is much reduced, owing to excess elimination in the sweat. The cause of the cramps is probably a disturbance of the electrolyte balance, especially of the sodium and calcium ions within and outside active muscle tissue. Heat cramps can be prevented by the intake of 0.2 per cent sodium chloride solution or dilute Ringer's solution during the period of severe exertion in a hot environment.

Heat Prostration or Heat Exhaustion.—This syndrome is characterized by collapse without elevation of body temperature during exposure to an excessively hot environment. During the collapse, manifestations of peripheral vascular failure, with pallor, poor venous return and hypotension, are present. The body temperature is not far from normal and the heart rate is usually less than 100 per minute. The findings in the blood and urine show minor deviations from normal. Adequate water and salt to maintain optimal concentration within the body during exposure to high temperature and the avoidance of the predisposing factors are highly preventive.

Heat Hyperpyrexia or Heat Stroke.—This is often spoken of as "thermic fever" or "sunstroke." It is a syndrome consisting of high elevation of body temperature resulting from exposure to excessive heat. Usually those afflicted with chronic degenerative conditions, especially in the late decades of life, are highly susceptible. The onset of acute symptoms is usually preceded by partial or complete cessation of sweating, which is indicative of a breakdown of the heat-regulating mechanism. Headache, vertigo, fainting and abdominal distress are premonitory symptoms. Delirium and coma may develop in those severely affected and the chances for recovery are slim. Temperatures as high as 110 F. have been reported. Whenever the rectal temperature is above 106 F. the prognosis is bad and profound shock, convulsions and circulatory collapse are usually terminal. The mortality rate may be as high as 50 per cent. Leukocytosis is present; acidosis may develop, and casts may be present in the urine. In the presence of pulmonary congestion, bronchopneumonia may become a dangerous complication. Necropsy findings show generalized congestion of the brain, lungs and abdominal viscera, and minute hemorrhages may be present.

REPORTS OF THE COUNCIL

The Council on Physical Medicine has authorized publication of the following reports. HOWARD A. CARTER, *Secretary.*

GENERAL ELECTRIC CRYSTAL CONTROLLED MODEL D INDUCTOTHERM ACCEPTABLE

Manufacturer: General Electric X-Ray Corporation, 4855 W. McGeoch Avenue, Milwaukee 14.

The Model D Inductotherm is a high frequency generator of electric energy designed for production of heat within human tissues by means of electromagnetic induction. The application to the human body can be made with either the cable or the disk electrodes, both of which are available.

The height of the unit is 109 cm. (43 inches). The other dimensions are 50 by 66 cm. (19½ by 26 inches). The shipping weight is 200 Kg. (441 pounds). For operation it requires alternating current at 100 to 130 volts and 15 amperes. The power input is stated to be 1,800 watts and the output over 200 watts at 13.56 megacycles per second. Accessories include a flexible arm, a disk electrode, a cable electrode, a wall rack and a space set.

The Federal Communications Commission has granted type approval for the Inductotherm Model D, and the Department of Reconstruction and Supply of the Canadian government has approved it. The apparatus is listed by the Underwriters' Laboratories, Inc.

Model D Inductotherm has been tested in a laboratory and clinic acceptable to the Council. It was found to be well made, convenient to operate and a satisfactory source of heat for the administration of diathermy.

The Council on Physical Medicine voted to include the General Electric Crystal Controlled Model D Inductotherm in its list of accepted devices.

PURITAN PM-250 MASK AND BAG ACCEPTABLE

Manufacturer: Puritan Compressed Gas Corporation, 1240 W. Jackson Boulevard, Chicago 7.

This assembly is designed for the administration of oxygen or of gaseous mixtures containing oxygen to human subjects. It consists of the following parts, which may be purchased separately: (1) a nosepiece, made of light plastic, capable of being fitted to various sizes and shapes of nose, and equipped with an adjustable vent; (2) a supply bag, made of latex and provided with an automatic relief valve; (3) an adjustable head strap made of pure gum rubber; (4) an aluminum bag-to-hose connection, and (5) 152 cm. (5 feet) of latex supply tubing. The shipping weight of the whole is 900 Gm. (2 pounds).

The apparatus, on investigation, was found to be satisfactory for use in the various conditions in which oxygen therapy has been demonstrated to be of value. While the advertising also mentions the treatment of migraine, the Council does not consider the oxygen treatment of migraine to have proved to be effective.

The Council on Physical Medicine voted to include the Puritan PM-250 Mask and Bag in its list of accepted devices.

PURITAN SF-2 OXIFIER ACCEPTABLE

Manufacturer: Puritan Compressed Gas Corporation, 1240 W. Jackson Boulevard, Chicago 7.

The Puritan SF-2 Oxifier is an assembly intended to be attached to a tank of oxygen or other gas containing oxygen to be administered to patients. The parts include a single stage regulator, commercial ⅞ inch (22 mm.) cylinder connection, tube type flowmeter, audible warning signal, standard quart (946 cc.) humidifier jar, single and double catheter connections, two catheters, tubing and wrench. The shipping weight of the assembly is 5.4 Kg. (12 pounds).

The Council on Physical Medicine voted to include the Puritan SF-2 Oxifier in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 11, 1948

ASSESSMENT TO PROVIDE EDUCATIONAL PROGRAM

At the recent St. Louis interim session of the American Medical Association, the House of Delegates unanimously voted to assess each member of the Association $25. The fund thus provided will be used for a nationwide plan of education on the progress of American medicine, the importance of the conservation of health and the advantages of the American system in securing a wide distribution of a high quality of medical care. The assessment will come to the members through the state and county societies.

A CALL TO ACTION AGAINST NATIONALIZATION OF MEDICINE

One of the most fundamental actions taken by the House of Delegates at the Interim Session was the decision to assess every member of the Association $25 in order to provide a fund adequate for meeting the proposal of the present administration and particularly of the present Federal Security Administrator to nationalize the services of the medical profession through the enactment of a compulsory sickness insurance act covering every person in the United States.

Almost since the day of Mr. Truman's election Mr. Ewing has been engaging in a one man campaign in behalf of this legislation, speaking on the radio, granting interviews to the press, issuing announcements from his office and attempting to break down public confidence in the medical profession by every possible technic. In this activity he has leaned heavily on his brochure "The Nation's Health," which purports to be related in some manner to the National Health Assembly but which represents a perversion of the data there offered and which bears not the slightest resemblance to the official record of the conclusions of the various sections of the National Health Assembly.

Mr. Ewing has leaned largely on two statements which also bear but little or no resemblance to scientifically established fact. He has asserted that some 300,000 lives could be saved if only his proposals were made the law of the land, and he has said again and again that some 70,000,000 persons, or approximately one half the population of the United States, are without proper medical care. The 300,000 persons who he alleges die "needlessly" each year include 40,000 deaths from accidents. The National Safety Council would, no doubt, be interested to know exactly how Mr. Ewing would prevent those deaths. In 1945, 170,000 persons died from communicable diseases, and Mr. Ewing assures us that 120,000 of these persons need not have died. Actually the death rates from communicable diseases in the United States are the lowest in our history, and in 1947, when the total number of deaths was higher than in 1945, only 137,000 deaths were deaths from communicable diseases. Since there is no evidence that any considerable number of these persons died without medical attention, one wonders as to just how Mr. Ewing would propose to save these lives through the enactment of compulsory sickness insurance.

The statement that 70,000,000 persons are without proper medical care simply because 70,000,000 persons happen to have incomes found by statisticians to be less than $3,000 per family per year is another statement without the slightest support in factual evidence. If 70,000,000 Americans were without proper medical care, there would be the kind of public revolt that occurs when one half of a nation's population becomes hungry or happens to be without food or shelter, which are among the necessities of life. Actually the farm population, which is a large portion of those included among these 70,000,000 persons, has relatively low cash income but has also for the most part access to good medical care.

The argument of Mr. Ewing is based wholly on income figures, and Mr. Ewing chooses to disregard entirely a technical term used by economists, namely priorities. Since one out of every four persons in the United States has a motor car, one out of two a radio, and since our people find funds available for such substances as liquors and tobacco in amounts almost as great as the total bill for medical care, one cannot but refer to the priorities and to the lack of suitable education which makes people choose to spend their money for such items rather than for the securing of medical care. Already throughout most of this nation organizations and facilities are available for insurance at exceedingly low rates against the costs of hospitalization and the costs of surgery, obstetrics or other medical care. The people have begun to learn and are insuring themselves increasingly against these costs, but Mr. Ewing suggests that they be forced to pay for their medical care by deductions from their wages or other income rather than voluntarily choosing to protect themselves against the costs of illness as free Americans have chosen since the democracy was established.

The House of Delegates at its meeting just held in St. Louis adopted for the American Medical Associa-

tion a policy in relation to compulsory sickness insurance which states in unequivocal terms the point of view of the medical profession toward Mr. Ewing's proposals:

"The American Medical Association reaffirms its belief in the application of the principle of medical care insurance on a voluntary basis. The American Medical Association has encouraged and assisted the development of voluntary prepayment plans. Coverage is now provided throughout the country, and protection is being extended rapidly to an ever increasing proportion of our population.

"The American people now enjoy the highest level of health, the finest standards of scientific medical care and the best quality of medical institutions thus far achieved by any major country of the world.

"The great accomplishments of American medicine are the result of development by a free profession working under a free system, unhampered by Government control.

"The experience of all countries where Government has seized control of medical care has been progressive deterioration of the standards of that care to the serious detriment of the sick and needy.

"The American medical profession is unalterably opposed to the institution of any system of medical care which would result in damage to the American public. Our carefully considered opinion is that any scheme of political medicine would be a catastrophe for the American people.

"Compulsory sickness insurance, notwithstanding misleading bureaucratic propaganda, is a variety of socialized medicine or state medicine and possesses the evils inherent in any politically controlled system. It is contrary to American tradition and is the first and most dangerous step in the direction of complete state socialism. The American Medical Association rejects any such scheme as a method of the distribution of medical care; we are equally certain that when the people understand the facts, they also will reject it with the same finality.

"On the basis of experience, we are convinced that voluntary medical care insurance, with the continued support of the American medical profession, can and will solve the economic problem of the distribution of medical care within the existing framework of private enterprise.

"It has been demonstrated that the voluntary method provides a better and less costly service and avoids the imposition of enormous taxation.

"The continuing purpose and determination of the American Medical Association is to maintain and improve the standards of medical care and to make that care available to all our people."

Mr. Ewing in his radio talks and in his interviews has chosen to insult, berate, deride and ridicule the great medical profession of this country. The physicians of the United States may well stand before the people of our country on their record of service to the people. Again and again Mr. Ewing has referred to the fact that the lives of 140,000,000 persons are more important than the wishes of 180,000 physicians. Let the people know that medical care comes from the medical profession and that no compulsory sickness insurance plan or other form of nationalization of medical service can succeed without placing on that medical profession the total burden of service. Mr. Ewing would do well to confer with leaders of the medical profession as to the path that medicine should take in this country rather than relying on the kind of arguments that win cases before juries for great corporations or for criminals.

THE ST. LOUIS SESSION

The St. Louis Session has been almost unanimously praised as one of the most interesting and successful meetings of the American Medical Association. The total registration was 4,526, which included 2,200 Fellows of the Association. So great was the interest that the Board of Trustees is considering the possibility of opening these sessions to all members of the Association instead of limiting them exclusively to the Fellows.

The primary purpose of the Interim Session is the holding of a meeting of the House of Delegates and the provision of graduate medical education for general practitioners of the area concerned. A new technic was used in presenting graduate medical education, and of its abounding success there can be no question. Both the large lectures and the smaller clinics and demonstrations were packed to capacity. The television show provided by E. R. Squibb & Sons, which brought clinics directly from the various hospitals and medical schools of St. Louis to the auditorium, also was crowded beyond its seating capacity throughout the session. The Scientific Exhibit, as usual, was a chief center of interest for many who attended. Exhibitors at the technical exhibit also voiced their satisfaction at the number of persons they were able to see. Several exhibitors commented that a high percentage of the audience were men who had never previously attended sessions of the American Medical Association.

Other features of the session included the entertainment, which was attended by 4,000 visitors, enthusiastic in their reception of the visiting artists, all of national importance. The Grass Roots Conference also enlisted a capacity audience. The final general session was devoted to the presentation of a medal to an outstanding general practitioner, a medal to Father Alphonse Schwitalla for distinguished service in maintaining the ideals of medicne, and a lecture by Professor A. C. Ivy on the relationship of socialized medicine in Germany to the actions of the Nazi medical criminals.

Prior to the Interim Session a Public Relations Conference was held and brought forth a large audience

of executives of state and county medical societies especially interested in this aspect of modern medical educational work. A conference was held for state medical society officials and for the editors of state medical journals. This program was also enthusiastically received and served to place before the representatives of state medical societies the problems currently of greatest concern to the medical profession.

The city of St. Louis did its utmost for the success of the occasion. Great thanks are due to the local committee on arrangements, including particularly Drs. Alphonse McMahon and Robert Schlueter, who helped to develop the clinical material for the educational sessions and in making arrangements for the special sessions. Moreover, St. Louis provided perfect weather.

SHALL ARMY MEDICINE BE CONTROLLED BY THE DIRECTOR OF LOGISTICS?

The place of the Medical Department in the staff organizations of the three armed services has become increasingly the concern of medicine and its allied professions during the past ten years. During this period about one half of the practicing physicians of this country have served in the armed services. Probably no other profession or occupational group has contributed so high a percentage of its members to the service of their country.

Among the various factors that have troubled physicians during their tours of duty in the armed services and, particularly, those who have served in the Army, is the placing of medicine among the services of supply. From the philosophic (and unfortunately practical) point of view, those who guide the destiny of the Department of the Army have considered the provision of medical and allied services a supply problem, of a nature similar to that of providing food or clothes, transportation or ordnance equipment. This type of thinking relegated the Office of the Surgeon General to the Army Service Forces during World War II. It placed medical sections in the Service of Supplies echelon in certain overseas theaters of operations. This type of thinking now has placed the Medical Department under the Director of Logistics, as directed in Circular No. 342, dated Nov. 1, 1948, and entitled "Organization of the Department of the Army."

In peace or in war the maintenance of the man power of the armed services in an effective and healthy condition is a prime objective. The Medical Department plays a paramount role in this endeavor. No other advice should be more often sought by the commanding officer, either battalion commander or chief of staff, than that of the surgeon. Now Circular No. 342, paragraph 12 b, states, "under the direction of the Chief of Staff and the Assistant Secretary of the Army on *procurement and related industrial matters* [italics ours] as prescribed in paragraph 4. 1, the Director of Logistics *directs and controls* [again italics ours] the operations and administrative activities of the heads of the Technical Services." The Surgeon General of the Army is listed among the heads of "Technical Services."

Consistently since World War II, the American Medical Association has worked diligently to obtain the proper recognition and status for the medical and allied professions in the armed services. Following strong representations by the Committee on Emergency Medical Service of the American Medical Association, Secretary of the Army Kenneth C. Royall on December 1 announced that the historic position of the Surgeon General as direct adviser to the Secretary and Chief of Staff remains unchanged despite the recent top level reorganization of the Army. The directive outlining the reorganization, Mr. Royall said, will be amended to clarify the Surgeon General's status. The amendment, the Secretary declared, will state:

"In matters of standards of health and medical care of the troops, and the utilization of professional medical personnel, the Surgeon General shall have direct access to the Secretary of the Army and the Chief of Staff."

In April 1945, Secretary of War Stimson said: "I consider that the care of the sick and wounded and the character of the hospitalization in the Army are matters for the direct responsibility of the Secretary of War; also that the Surgeon General should be his principal adviser in regard to these vital matters. To this end I wish it clearly understood that I am to have direct access to him and he to me on such matters whenever either of us deems it to be essential." This statement, Mr. Royall said, was a declaration of long-standing Army policy, reaffirmed in December 1945 by Mr. Stimson's successor, Robert P. Patterson.

Current Comment

RENAL FUNCTION IN INFANTS

With the birth of the child, the task of removing fixed wastes from the circulatory system is transferred suddenly from the placenta to the kidney. At this time the child's kidney is not yet fully developed and it has not reached the state of efficiency characteristic of the adult organ.[1] Infant urine has a low specific gravity which is not increased in severe dehydration to the extent observed in the adult. Both urea and mineral clearances are low when compared with the mature subject on the basis of surface area. The rate of glomerular filtration and the rate of tubular secretion of substances such as creatinine are also low. Infants excrete a smaller fraction of ingested water than do adults, and only little diuresis results from the administration of hypertonic salt solution. If the baby is normal, the kidney will do all the work required of it, but if it is abnormal or must undergo some surgical operation, the pediatrician must assist the kidney to restore the normality of the internal environment. To do this, he requires all the information on renal function which the investigator is able to supply.

1. McCance, R. A.: Renal Function in Early Life, Physiol. Rev. **28**: 331, 1948.

ORGANIZATION SECTION

Official Notes

SCIENTIFIC EXHIBIT—ATLANTIC CITY SESSION

The following representatives have been appointed to the Scientific Exhibit from each of the eighteen Sections of the Scientific Assembly to assist in the procurement of exhibits:

Section on Internal Medicine

Thomas C. Garrett, M.D., The Midnight Pass Road, Siesta Key, Sarasota, Fla.

Section on Surgery, General and Abdominal

Walter G. Maddock, M.D., 250 East Superior Street, Chicago.

Section on Obstetrics and Gynecology

Frederick H. Falls, M.D., University of Illinois College of Medicine, 1853 West Polk Street, Chicago.

Section on Ophthalmology

Georgiana Dvorak Theobald, M.D., Chairman, 715 Lake Street, Oak Park, Ill.
Phillips Thygeson, M.D., St. Claire Building, San Jose, Calif.
Edwin B. Dunphy, M.D., Massachusetts General Hospital, Boston.

Section on Laryngology, Otology and Rhinology

James B. Costen, M.D., 722 Beaumont Medical Building, St. Louis.

Section on Pediatrics

Albert V. Stoesser, M.D., 412 Delaware Street, S.E., Minneapolis.

Section on Experimental Medicine and Therapeutics

Robert W. Wilkins, M.D., Evans Memorial Hospital, 65 East Newton Street, Boston.

Section on Pathology and Physiology

Alvin G. Foord, M.D., Huntington Memorial Hospital, Pasadena, Calif.

Section on Nervous and Mental Diseases

A. B. Baker, M.D., University of Minnesota Medical School, Minneapolis.

Section on Dermatology and Syphilology

Francis W. Lynch, M.D., 350 St. Peter Street, St. Paul.

Section on Preventive and Industrial Medicine and Public Health

Paul A. Davis, M.D., 1436 Delia Avenue, Akron, Ohio.

Section on Urology

John H. Morrissey, M.D., Chairman, 40 East 61st Street, New York.
Robert Barnes, M.D., 1216 Wilshire Blvd., Los Angeles.
Earl Ewert, M.D., 7 Longfellow Road, Cambridge, Mass.
John Dees, M.D., Duke Hospital, Durham, N. C.

Section on Orthopedic Surgery

Tom Outland, M.D., Crippled Children's Hospital, Elizabethtown, Penn.

Section on Gastro-Enterology and Proctology

Donovan C. Browne, M.D., 1534 Aline Street, New Orleans.
J. P. Nesselrod, M.D., 636 Church Street, Evanston, Ill.

Section on Radiology

S. W. Donaldson, M.D., 326 N. Ingalls Street, Ann Arbor, Mich.

Section on Anesthesiology

Harold F. Bishop, M.D., Grasslands Hospital, Valhalla, N. Y.

Section on General Practice

M. B. Casebolt, M.D., 4000 Baltimore, Kansas City, Mo.

Section on Chest Diseases

Edwin R. Levine, M.D., Michael Reese Hospital, 29th and South Ellis Avenue, Chicago.

Application blanks for space in the Scientific Exhibit at the Atlantic City Session, June 6-10, 1949, may be obtained from the Section Representatives or from the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago 10, Ill.

Washington Letter

(From a Special Correspondent)

Dec. 6, 1948.

Government Wins Kordel and Urbuteit Cases in Supreme Court

By the narrowest margin, the U. S. Supreme Court on November 22 decided the Kordel and Urbuteit cases in favor of the federal government, thereby providing a strong deterrent to interstate marketing of misbranded "health foods" and therapeutic devices. Involving the same issue—whether labeling literature must be affixed to or physically accompany the product to bring the shipment within the purview of the Federal Food and Drug Act—the two cases were heard together. The split decisions (5 to 4) had the same dissenters in each case. They were Justices Black, Frankfurter, Murphy and Jackson.

"It would, indeed, create an obviously wide loophole to hold that these drugs would be misbranded if the literature had been shipped in the same container but not misbranded if the literature left in the next or in the preceding mail," said the majority opinion, delivered by Justice Douglas, in the Kordel case. ". . . one article or thing is accompanied by another when it supplements or explains it, in the manner that a committee report of the Congress accompanies a bill. No physical attachment one to the other is necessary. It is the textual relationship that is significant."

The Court ruled similarly in reversing an appellate court decision in favor of Fred Urbuteit, whose "sinuothermic" machine had been seized by federal agents. "The problem is a practical one of consumer protection, not dialectics," said the Supreme Court, Justice Douglas also delivering this opinion. "The fact that the false literature leaves in a separate mail does not save the article from being misbranded."

The dissenting opinion, drafted by Justice Black, applied to both cases. It held that the Food and Drug Act does not cover misbranding of products occurring as long as eighteen months following their shipment.

Disposition of 55 cases in lower courts throughout the country has been held up pending outcome of the Lelord Kordel appeal and the government's appeal in the Urbuteit case. Food and Drug Administration officials feel the Supreme Court decisions will strengthen enforcement immeasurably.

Manual on Premature Infants Published

A 400 page paper-bound book, "Premature Infants: A Manual for Physicians," has just been published by the Children's Bureau. Intended mainly for use by general practitioners, the volume presents the general problem and deals with such survival measures as resuscitation, incubator care, nutritional requirements and prevention and treatment of infections. The book's author is Dr. Ethel C. Dunham, consultant to the Children's Bureau. Price is $1.25 and copies are purchasable from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Another new publication of Children's Bureau is a 63 page monograph by Dr. George Wolff on child mortality attributable to rheumatic fever and cardiac diseases. It may be procured (25¢) from the Superintendent of Documents also.

To help finance the International Congress on Rheumatic Diseases, which will be held in New York May 30 to June 3, 1949, U. S. Public Health Service has approved a grant of $15,000 on recommendation of the National Advisory Health Council.

Carnegie Institution Annual Report

Detailed accounts of 1947-1948 progress in its various departments and divisions, including embryology, genetics and the biologic sciences, are presented in the annual report of Carnegie Institution of Washington. The report was published December 10.

GOVERNMENT SERVICES

ARMY

COMMISSIONS FOR PSYCHIATRIC SOCIAL WORKERS

The U. S. Army has reserve commissions available for psychiatric social work officers in the new program of the Neuropsychiatric Consultants Division. Commissions in the Organized Reserve Corps are available to all who qualify educationally and physically with no reference to prior military service. The rank of individual commissions will be commensurate with professional experience and training. Minimum requirement for commission is a master's degree from an approved school of social work, with a major in case work. Applicants with one year's experience can qualify for a first lieutenant's commission and with four additional years for that of captain. Twelve years of experience and training will meet the requirement for the rank of major. At the time of commission, the reserve officer may make application for duty of short periods of ninety days or for extended periods of at least three years. There are opportunities for qualified reserve officers who wish to serve on extended active duty for a three year period in the neuropsychiatric services of the new training centers being opened in the Army. Openings also exist in the Army general hospitals here and overseas. Information about reserve commissions may be obtained from the Personnel Division, Office of the Surgeon General, The Pentagon, Washington, D. C.

MEDICAL MEETING IN TOKYO

U. S. Army medical officers held a meeting with civilian consultants from the homeland recently at the Eighth Army's 361st Medical Station Hospital and 406th General Medical Laboratory in Tokyo. The civilian physicians participating are members of the faculties of medical colleges of the United States and represented one of several similar groups of civilian consultants which the Army Medical Department has been sending abroad to bring to medical officers the latest advances and technical information. At the Tokyo conference, Dr. Joseph M. Hayman Jr., professor of medicine, Western Reserve University Medical School, Cleveland, spoke on "The Collagen Diseases," and Dr. R. W. Waggoner, professor of psychiatry, University of Michigan Medical School, Ann Arbor, on "Diagnosis of Pathologic Personalities."

In the panel on encephalitis, Capt. F. J. Mayer discussed American cases; Major T. O. Berge, chief, Section of Virus and Rickettsial Diseases of the General Laboratory, discussed laboratory diagnosis; Lieut. Col. R. S. Aronson, chief, Section on Pathology of the Laboratory, discussed pathologic changes, and Major A. A. Hellams and Capt. F. M. Phillips discussed psychiatric residual effects.

Lieut. Col. G. W. Hunter, chief, Zoology Section of the General Laboratory, discussed parasitic diseases of Japan. There was a symposium on leprosy with a demonstration of cases led by Dr. M. C. Morton, assistant chief, Medical Service Division, Public Health and Welfare.

The program was introduced by Lieut. Col. W. T. Tigertt, Commandant of the General Medical Laboratory.

TRAINING IN CIVILIAN INSTITUTIONS

The following additional Army Medical Department officers have been accepted for training by the civilian hospitals and schools indicated: Lieut. Col. Harold S. McBurney and Major Humbert N. Riva for courses in orthopedic surgery and gynecology, respectively, at the New York Postgraduate Medical School, New York; Capt. Robert G. Stanley for a course in obstetrics and gynecology at the Long Island College Hospital, Brooklyn; Capt. Donald W. S. Stiff for a course in radiology at the Mary Fletcher Hospital, Burlington, Vt.; First Lieut. Robert W. Puckett for a course in internal medicine at the Huntington Memorial Hospital, Pasadena, Calif., and, as first lieutenants for intern training, Samuel P. Oast at the Bellevue Hospital, New York; Robert L. Sherman at the City Hospital, Welfare Island, New York; Joseph L. Girardeau at the Grady Memorial Hospital, Atlanta, Ga.; Robert S. Taylor at the Methodist Hospital, Indianapolis; Joseph M. Damron at the Medical College of Virginia, Richmond; Kenesaw Mannings at the Provident Hospital and Training School, Chicago; Harold G. Carstensen at the University of Chicago Clinics, Chicago; Hugh H. Curnutt at the Scott and White Hospital, Temple, Texas, and Winston C. Jesseman at the Cincinnati General Hospital, Cincinnati.

SCIENTIFIC MISSION TO JAPAN

The Department of the Army announced November 17 that a mission composed of five American scientists selected by the National Academy of Sciences was expected to arrive in Japan late in November to review progress made by Japanese scientists on development of democratic national organizations for scientific activity. The mission arrived at the time that 40,000 Japanese scientists representing all fields of research were participating in the election of 210 members of Japan's first National Science Council. This election is said to be the first attempt of scientists of any country to elect at large members of its supreme scientific organ. The United States scientists comprising this mission are: Dr. Detlev W. Bronk, chairman, National Research Council, and president-elect of Johns Hopkins University, chairman of the mission; Dr. E. C. Stakman, chief, Division of Plant Pathology and Botany, University of Minnesota, and president-elect of the American Association for the Advancement of Science; Dr. Zay Jeffries, vice president of General Electric Company and general manager of its chemical department; Dr. I. I. Rabi, professor of physics, Columbia University, consultant, Research and Development Board, who was awarded the 1944 Nobel Prize in Physics, and Dr. R. Adams, head, department of chemistry, University of Illinois, and chairman of the scientific advisory group that visited Japan in 1947.

The mission is expected to remain in Japan until about December 18, spending most of its time in Tokyo in discussion with occupational personnel and Japanese scientists and making short visits to Hiroshima, Kyoto, Sapporo and Sendai.

REFRESHER COURSE FOR FLIGHT NURSES

The Surgeon General announces that a ten day refresher course for former flight nurses will be conducted at the Air Evacuation School at Randolph Field, Texas, Jan. 16-28, 1949. Applications are invited from graduate nurses under 35 who have had the flight nurse course in the Air Evacuation School and who are members of the Army Nurse Corps Reserve. Applications should be made to the commanding general of the Army area in which the nurse resides, prior to Dec. 15, 1948. The qualified flight nurse will be ordered to active duty for the ten day period with full pay and allowance for the grade she holds in the Reserve Corps. The purpose of the course is to acquaint nurses with new developments in the duties of the flight nurse in air evacuation. The Air Force estimates that more than sixteen hundred nurses have been trained in Air Evacuation School since the course was established in August 1943.

APPOINT 232 INTERNS

Major General Raymond W. Bliss, the Surgeon General, announced November 16 the appointment of medical school graduates to fill 232 internships in five Army teaching hospitals. The interns, who were selected from among 800 applicants, will on July 1, 1949, after being commissioned first lieutenants in the Reserve, go on duty with full pay and allowances and will be indoctrinated in the military application of their one year's rotating internship training. Later they will have the opportunity to apply for commissions in the Regular Army Medical Corps.

NAVY

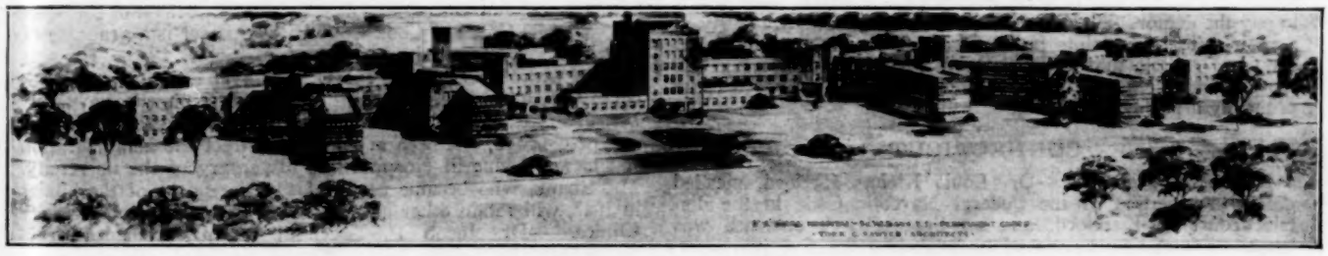
EXAMINATIONS FOR APPOINTMENT IN REGULAR NAVY

Examinations for the selection of candidates for appointment to the grade of lieutenant (jg) in the medical corps of the Navy will be held at Naval hospitals in continental United States Jan. 24-28, 1949. Graduates of approved medical schools in the United States or Canada who have completed intern training in accredited hospitals or who will complete intern training within four months of the date of the examination, and who are physically and otherwise qualified, are eligible to take the examination. Candidates, who must be less than 32 years of age at the time of appointment, are required to appear before boards of medical examiners and supervisory Naval examining boards at the Naval hospital nearest their place of residence to demonstrate their physical and professional qualifications for appointment.

Following approval by the President of the United States, selected candidates will receive their appointment and orders assigning them to duty in a Naval medical facility for active Naval service. The law provides additional compensation at the rate of $100 a month for each month of active service performed by medical corps officers of the Navy. This is in addition to any pay, allowances or emoluments that medical corps officers are otherwise entitled to receive. Information concerning the procedure of application may be obtained from Naval Officer Procurement offices or from the Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C.

THE LARGEST NAVY HOSPITAL CONTRACT EVER AWARDED

The Navy announced November 3 that construction had started on the new buildings for the Naval hospital at St. Albans, Queens, New York city. This is said to be the largest hospital contract ever awarded by the Navy's Bureau of Yards and Docks. The $14,823,000 project, including nine buildings, is expected to be completed in two and a half years. This hospital was planned before the war, and foundations for the construction were laid at that time. Four ward buildings in the original plans have been eliminated from the present contract. The new permanent buildings will be located directly in front of the old facilities on the site which was formerly part of the St. Albans Country Club. The largest unit ever built for cancer therapy,



Navy Hospital at St. Albans, N. Y.

NEW REGULAR OFFICERS

Lieut. Comdr. Frances L. Willoughby of Pitman, N. J., and Lieut. Trowbridge R. Mafit of Chicago have transferred from an active reserve status to the Medical Corps of the Regular Navy. Lieut. Comdr. Willoughby is the first woman medical officer to transfer to the Regular Navy.

Lieut. Doris Cranmore of Eloise, Mich., of the Medical Allied Science Section, who recently was appointed in the Regular Navy, is the first woman to be accepted in the Medical Service Corps. She is on duty at the Medical Center, Bethesda, Md.

Lieutenant Commander Leo S. Madlem Jr. has recently transferred from active reserve status to the medical corps of the Regular Navy.

POSTGRADUATE TRAINING

The following medical officers have been nominated for duty under instruction in the fields of postgraduate training indicated: Comdr. Nicholas Musso, M.C., of Washington, D. C., to a residency in obstetrics and gynecology at the Naval Hospital, St. Albans, Long Island, N. Y.; Lieutenants (jg) Frederick W. George III, M.C.R., of Burgettstown, Pa., to a residency in radiology at the Naval Hospital, San Diego, Calif.; Charles L. Lear, of Montebello, Calif., to a residency in general practice at the Naval Hospital, Long Beach, Calif., and William C. Turville, M.C., of Revere, Mass., to a residency in surgery at the Naval Hospital, St. Albans, Long Island, N. Y.

NEW NAVY INTERNS

Seventeen new members of the Navy's Medical Intern Training Program have accepted commissions as lieutenant (jg) in the Medical Corps Reserve and have reported for their first active duty in internships at civilian medical institutions. On completion of their internships, they will serve on active duty according to the Navy, a 20,000,000 volt betatron, will be constructed underground and connected through a tunnel with a ward building housing the St. Albans Cancer Clinic. The equipment will include also a 1,000,000 volt x-ray unit. The complete installation will include the betatron therapy building, six three-story ward buildings, a six-story administration and treatment building and a two-story building for hospital personnel. The architects are York and Sawyer, New York.

PERSONALS

Captain Glenn S. Campbell, M.C. (Retired), of Alhambra, Calif., has voluntarily requested recall to active duty and will be assigned to the Naval Hospital, Long Beach, Calif.

Lieut. (jg) Morton J. Aronson, now at the Naval Hospital, St. Albans, N. Y., has been nominated for a residency in psychiatry at the Naval Hospital, Bethesda, Md.

Lieutenant (jg) George M. Stevens, M.C.R., of Angleton, Texas, has reported to the Naval Hospital, Portsmouth, Va., for his first active duty.

Captain Bernard S. Pupek, M.C., U.S.N., Retired, has requested recall to active duty.

The following medical reserve officers have requested recall to active duty: Comdr. Roscoe M. Waterhouse of Bronx, N. Y., who will be assigned to the Naval Recruiting Station at Springfield, Mass.; Lieut. Robert G. Dunn Jr., of Richmond, Va., to the Naval Hospital, Philadelphia, and Lieut. Benjamin F. Gundelfinger of Richmond, Calif., to the Naval Station, Treasure Island, San Francisco.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Doctors' Breakfast Club.—The Doctors' Breakfast Club of the San Fernando Valley Branch of the Los Angeles County Medical Association, formed eighteen months ago, meets every Wednesday morning at 8 o'clock in the Sky Room of the Lockheed Air Terminal in Burbank. The plan is being imitated locally and elsewhere in the county. One topic is presented for discussion at each meeting; emphasis is placed on practical factors involved, and research and historical references are avoided.

Honored for Tuberculosis Control Work.—Dr. Irving M. Schor, Visalia, was a recipient of the Tulare County Tuberculosis and Health Association's annual medical award for tuberculosis control in the county. It was presented at the meeting of the Tulare County Medical Society November 18. The purpose of the award, which the association plans to make an annual custom, is to give recognition to physicians in the county who are extending help and cooperation in solving the tuberculosis problem.

Not One Bona Fide Case Reported.—The Alameda County Medical Association has advertised a guarantee of medical care for all who need it regardless of their ability to pay. From the 750,000 persons in the county there has been not one bona fide case reported to the headquarters office of any one's being refused medical care because of lack of money with which to pay the doctor. The association has also repeatedly advertised a request for complaints on excessive fees and other unethical acts, and reports that although there have been answers to the request they have been few and even these usually proved to be primarily a misunderstanding.

CONNECTICUT

Narcotic Violation.—Dr. Louis Klein, Hartford, pleaded guilty to violation of the Federal Narcotic Code in the district court at Hartford, and on September 8 sentence was suspended and he was placed on probation for five years.

Major Activities of Department of Health.—The Connecticut State Department of Health has published an attractive blue and white 12 page pamphlet, the purpose of which is set forth in its title, "Major Activities." The organization of the department's nineteen bureaus and divisions and their function in public health are clearly stated.

Vesalius Collection on Display.—The works of Andreas Vesalius, father of modern anatomy, are now on display in the Yale Medical Library, New Haven. The exhibit comprises writings and drawings from the Vesalius Collection in the Yale School of Medicine Historical Library brought together by the late Dr. Harvey Cushing. The display will remain in the Yale Medical Library through December. Angered by the criticism of his work, Vesalius gave up his research and teaching and went into a self-imposed retirement. Not until many years after his death were his theories and discoveries accepted. The Yale Medical Library exhibit also includes Vesalius' thesis, many reproductions of drawings from his works and selections from his lesser known medical writings.

ILLINOIS

Special Society Meetings.—The Illinois Psychiatric Society, meeting in Chicago December 2, heard a "Symposium on Mind and Brain in Psychiatry." The participants speaking by invitation were Dr. Ralph W. Gerard, Dr. Warren S. McCulloch and Dr. Ward Halstead.——Dr. Alex J. Arieff, Chicago, addressed the Illinois State Physical Therapy Association December 1 on "Electrodiagnostic Testing in Peripheral Nerve Injuries."

Chicago

Hospital News.—Ravenswood Hospital opened its new $1,500,000 addition November 13. It provides room for one hundred additional beds and allows for expansion of the x-ray, laundry, pharmacy and dietary departments.

The Thirteenth Fenger Lecture.—The thirteenth Christian Fenger Lecture of the Institute of Medicine and the Chicago Pathological Society will be delivered at the Palmer House Jan. 10, 1949 at 8 p.m. by Dr. Dallas B. Phemister on "Circulatory Disturbances of the Skeletal System."

Lectures on Fertility.—Two visiting lecturers will address the Chicago Medical Society December 15 at 8 p.m. in the John B. Murphy Memorial Auditorium. Dr. Robert S. Hotchkiss of Cornell University Medical College, New York, will speak on "Procedures in the Investigation of Male Fertility," and Dr. Charles L. Buxton of Columbia University College of Physicians and Surgeons, New York, on "Gynecological Aspects of Sterility."

Grants for Research.—Grants totaling $22,462 have been awarded to the University of Illinois' Chicago Professional Colleges as follows: A grant of $10,800 from the U. S. Navy for continued research in the prophylaxis and treatment of experimental hypertension to the department of physiology under the direction of Dr. George E. Wakerlin; a grant of $4,882 from the American Society of Heating and Ventilating Engineers for studies in physiologic adjustments of human beings to rapid changes in environment to the department of medicine under the direction of Dr. Robert W. Keeton; $3,780 from the U. S. Public Health Service for research on cephalometric roentgen study of the growth of the human head from the eighth to the fifteenth year to the College of Dentistry under the direction of Allan G. Brodie, Ph.D.; $2,000 from the Illinois Federation of Women's Clubs to Dr. Danely P. Slaughter for a fellowship in cancer, and $1,000 from the American Medical Association for studies on pancreatic function to the department of surgery under the direction of Dr. Warren H. Cole.

Personals.—Dr. Klaus R. Unna, associate professor of pharmacology, University of Illinois College of Medicine, was recently a guest lecturer at the International Dermatological Congress in Hamburg, Germany. He spoke on "Recent Advances in Antihistamine Therapy."——Dr. Robert A. Esser has been appointed assistant director of the Behavior Clinic of the Criminal Court of Cook County. Dr. Esser is a graduate of Northwestern University School of Medicine, 1945. He was head of neuropsychiatry at the U. S. Naval Hospital at Pensacola, Fla., prior to his recent discharge from the navy.——Mr. Frank R. Shank, assistant superintendent of clinics, University of Chicago, has been appointed to direct the administration of Chicago Lying-in Hospital and dispensary of the university. Mr. Shank, who became assistant superintendent of the clinics in 1947, will retain other administrative duties in the University Clinics.——Dr. Jacob P. Greenhill recently returned from South America, where he lectured in Spanish. He was made honorary professor at the University of San Marcos, Lima, Peru, and received honorary memberships in nine societies devoted to obstetrics, gynecology and sterility. He was also a guest of the Second Brazilian Congress on Obstetrics and Gynecology.

KANSAS

Annual Cancer Conference.—The first annual Midwest Cancer Conference will be held at the Broadview Hotel, Wichita, Jan. 20-21, 1940, under the sponsorship of the Kansas Medical Society and the Kansas Division of the American Cancer Society. There will be no registration fee. Eight guest speakers will present two papers each during the scientific program, and Dr. Charles S. Cameron, medical director of the American Cancer Society, will be the banquet speaker January 20. Round table luncheons will be held each day. Physicians from Kansas and neighboring states are invited.

Dinner Honoring Dr. Nesselrode.—At a dinner given by the board of directors of the Kansas Division of the American Cancer Society in Wichita October 27, Dr. Clifford C. Nesselrode, Kansas City, was honored on the occasion of his retirement as president. Dr. Nesselrode has served on the board of directors of the American Cancer Society since its founding and has been president of the Kansas Division since its organization. He also served as chairman of the Kansas Medical Society's first Committee on Control of Cancer. Dr. Robert H. Riedel, Topeka, gave the principal address.

MICHIGAN

Society News.—The Detroit Dermatological Society has elected the following officers for 1948-1949: Dr. Clarence E. Reyner, Detroit, president; Dr. Frank Stiles Jr., Lansing, president-elect, and Dr. Herbert H. Holman, secretary-treasurer.

Health Center Opened in Detroit.—The Northwest Health Center, the first building planned and built in Detroit for public health purposes, was opened early in October. Biologic supplies, food handlers' physical examination forms and birth certificates are available at the new center. It will serve an area comprised of 16 per cent of Detroit's population.

MINNESOTA

The Sixteenth Judd Lecture.—The sixteenth E. Starr Judd Lecture will be given by Dr. E. W. Alton Ochsner, William Henderson professor of surgery at Tulane University, New Orleans, Jan. 18, 1949, at 8:15 p.m. at the Museum of Natural History, University of Minnesota, Minneapolis, on "The Treatment of Postphlebitic Sequelae by Vasodilatation and Other Measures." The late Dr. E. Starr Judd, an alumnus of the Medical School of the University of Minnesota, established this annual lectureship in surgery a few years before his death in 1935.

Sixteen Counties Accredited in Tuberculosis Control.—Cottonwood County was awarded accreditation certificates for its accomplishments in tuberculosis control at a ceremony in Windom in September. A county is accredited when its tuberculosis rate drops to an average of 10 or less per 100,000 population for a five year period and when not more than 15 per cent of its high school seniors react positively to the tuberculin test. It is the sixteenth county in the state to be accredited. Certificates were awarded by the Minnesota State Medical Association and the Minnesota Department of Health.

Dr. Freeman Goes to Montana.—Dr. George H. Freeman, superintendent of the St. Peter State Hospital, St. Peter, for twenty-three years, resigned October 1 to become superintendent of the state hospital at Warm Springs, Montana. Dr. Burton P. Grimes, former assistant superintendent, succeeds him. Dr. Freeman ends forty-two years of service in Minnesota state institutions beginning at St. Peter State Hospital, moving to the Willmar State Hospital and in 1925 back to the St. Peter institution. Dr. Grimes was a member of the medical staff from 1937 to 1940 and has been assistant superintendent since 1946.

MISSOURI

Dr. Schauffler Honored.—Dr. Robert M. Schauffler, Kansas City, was awarded a citation by the R. J. Delano School November 8 for "having rendered outstanding service in the education of crippled children; having continued this counsel over a long period of years and having given professional services to many needy children."

Personal.—Dr. Carl F. Cori and his wife, Dr. Gerty T. Cori, Nobel prize winning professors of biochemistry at Washington University School of Medicine, St. Louis, were awarded honorary doctor of science degrees by Boston University October 22. The ceremony was a part of the one-hundredth anniversity of the founding of Boston University School of Medicine.

NEW YORK

Roentgen Survey in Niagara Falls.—A mass chest roentgenologic survey to cover 60,000 persons is being carried on by the city health department in Niagara Falls with the cooperation of the State Department of Health, the Tuberculosis and Health Association of Niagara County and the Niagara County Sanatorium.

New York City

Third Harvey Lecture.—Dr. Fritz A. Lipmann, associate in biochemistry, Harvard Medical School, Boston, will deliver the third Harvey Lecture of the current series at the New York Academy of Medicine December 16 on "Biosynthetic Mechanisms."

Annual Meeting of James Ewing Society.—The second annual scientific session of the James Ewing Society will be held at Memorial Hospital Jan. 14-15, 1949. The program is as follows: A round table panel, "Relationship of Gastric Ulcer to Gastric Cancer," under the chairmanship of Dr. George T. Pack; a symposium, "Scientific Basis for Chemotherapy in Cancer," by members of the staff of the Sloan-Kettering Institute for Cancer Research, Dr. Cornelius P. Rhoads chairman; a symposium, "Radical Surgery in Advanced Cancer"; Dr. Gray H. Twombly, chairman.

Cancer Committee on Chemicals.—The formation of a cancer prevention committee to collect information about chemicals that cause cancer and to devise methods of preventing persons from coming into contact with such chemicals has been announced in New York. Its chairman is Dr. William E. Smith, a member of the staff of Sloan-Kettering Institute for Cancer Research, a section of Memorial Hospital Center. The committee's work will include testing of materials to find whether they have cancer-producing abilities and then carrying over these findings into everyday life, formulating practical methods for preventing people from coming in contact with these materials.

Hospital Given Large X-Ray Machine.—The Lila Motley League for Cancer Research has raised enough money for the Hospital for Joint Diseases to purchase a 2,000,000 volt x-ray machine for cancer research and treatment and provide a building to house the machine. Delivery is expected some time next summer. It will be operated under the direction of Dr. Milton Friedman. The project is part of the hospital's cancer treatment and research program, which includes the addition of twenty beds for patients and new physics and radiobiologic laboratories. The league is made up of twenty women who are raising funds for cancer research in memory of a friend who died of cancer.

Medical Schools Merge.—Formal agreement has been signed for the union of the New York Post-Graduate Medical School and Hospital with the New York University–Bellevue Medical Center. Simultaneously New York University announced the formation of the new postgraduate school. Through this move the medical center will have two medical schools, the other being the New York University College of Medicine, which will be devoted exclusively to the training of medical students. Dr. Robert Boggs was appointed last June acting dean of the Post-Graduate Medical School of the New York University–Bellevue Medical Center. Associate deans of the new school are Dr. Clarence E. de la Chapelle, formerly associate dean of the College of Medicine, and Dr. C. Travers Stepita of the faculty of Post-Graduate Medical School. Edwin A. Salmon, director of the New York University–Bellevue Medical Center, states that the new move gives added impetus to building plans of the university section of the medical center, for which an 11 acre site has been acquired just north of the Bellevue Hospital. Negotiations between the two schools began December 1946.

NORTH CAROLINA

Dr. Norton Receives Medal.—Dr. John W. R. Norton of Raleigh, head of the North Carolina State Board of Health, received the first Reynolds Medal and scroll at the October meeting of the North Carolina Public Health Association in Durham. The medal, given in honor of Dr. Carl V. Reynolds, Raleigh, former state health officer, is awarded to the association member who presents the most outstanding address or paper at the convention. Dr. Norton received it for his address which outlined the work of the health department and stressed the importance of developing cooperative relationships in public health in the state.

OREGON

Society News.—At a meeting of the Oregon State Society of Anesthesiologists at the University of Oregon Medical School library, Portland, December 8, Dr. John J. Bonica of the Tacoma General Hospital presented a paper on "Regional Anesthesia." There was also a series of short motion pictures beginning at 7 p. m.

Portland to Have Red Cross Blood Bank.—The American Red Cross has chosen Portland as one of its thirty "pilot" cities in a nationwide blood service program for installation of a blood bank service which will open Jan. 1, 1949. The program is sponsored by the Multnomah County Medical Society. Dr. Nicholas P. Sullivan, formerly affiliated with Eli Lilly and Company, Indianapolis, is technical director of the city's regional blood donor service, which will include five Washington and nine Oregon counties. The center will be equipped to process blood fully. Dr. Warren C. Hunter, Portland, is chairman of the medical advisory committee for the blood service program.

PENNSYLVANIA

Personal.—Dr. Lewis J. Kowalski of Philadelphia has been named assistant director of mental health in the State Welfare Department. Dr. Kowalski is a graduate of Temple University School of Medicine, Philadelphia, 1926.

County Society Centennial Celebration.—The one hundredth anniversary dinner and dance of the Bucks County Medical Society was recently held in the Doylestown Armory. Guest of honor was Dr. John B. Carrell of Hatboro, 97, the oldest known physician in Pennsylvania, a graduate of the Jefferson Medical College, Philadelphia, 1876. Among the visitors present were Lieutenant Governor Daniel B. Strickler, representing the governor, Dr. Gilson C. Engel, president of the Medical Society of the State of Pennsylvania, and Dr. Milton F. Percival, both of Philadelphia, representing the Philadelphia County Medical Society.

Philadelphia

Dedicate Blockley Medical Library.—The Blockley Resident and Ex-Resident Association of the Philadelphia General Hospital held its annual banquet meeting and dedicated the new Blockley Medical Library December 7. Dr. Harry E. Ungerleider, New York, director of medical research, Equitable Life Assurance Company, was chairman of the meeting. The library is in the Old Museum Room of the Laboratory Building and will contain nearly 4,000 volumes, including the historically

valuable Boerhave's Anatomy, printed in the seventeenth century and recognized as the first book printed about anatomy. Dr. Nathan H. Einhorn, Philadelphia, is chairman of the Library Committee.

Remaining Courses in Cancer.—The School of Medicine of the University of Pennsylvania will present the two remaining special courses in the diagnosis and treatment of cancer for graduate physicians in 1949 under a grant from the Division of Cancer Control of the Department of Health, Commonwealth of Pennsylvania. The second of the three courses will be presented January 17-29 and the third from April 25 to May 6. Application blanks will be sent on request to Dr. Robert C. Horn, Secretary of the Cancer Commission, Hospital of the University of Pennsylvania, Philadelphia 4. The courses are limited to a small group, and applications must be received not later than four weeks before opening date of the course. Tuition and fees and some compensation for the time spent away from regular practice will be paid by the Division of Cancer Control of the State of Pennsylvania, Department of Health.

SOUTH CAROLINA

Five Year Florence County Health Program.—The South Carolina State Board of Health has selected Florence County as the "pilot" county in the state for a coordinated health program. The services of the departments of education, agriculture, extension and public health will be coordinated in the interest of a more extensive and a more adequate health program. Demonstration of the five year program will utilize all available services and facilities of the state and county.

TEXAS

Dr. Callan Honored.—The people of Rotan set aside October 8 as "Dr. Callan Day" in honor of Dr. Chester U. Callan, general practitioner, whose story appeared in the *Saturday Evening Post* October 9. Stores closed during the one hour program which paid tribute to the physician, with Dr. Tate Miller, Dallas, president of the State Medical Association of Texas, as chief speaker. A dinner in his honor and dedication of the high school football game to him that evening were high-points of the day. Abilene Christian College, of which Dr. Callan is a graduate and trustee, had a program and luncheon in his honor October 19.

County Society Gives Library to State Association.—The Travis County Medical Society Library has been donated to the library of the State Medical Association of Texas, making it available to many physicians in the state. The journal and book collections of the society have been built up gradually since 1930 through appropriations and gifts from individual physicians and their families. Since the war the library has been housed in the basement of the Austin Public Library. However, after the removal of the central offices of the library of the state medical association to Austin this year, the county society voted to have its library assimilated in the larger collection.

WISCONSIN

Dr. Gavin to Head Board of Health.—Dr. Stephen E. Gavin, Fond du Lac, has been appointed president of the Wisconsin State Board of Health, succeeding Dr. Ira F. Thompson, Beloit, who has resigned because of ill health but will remain on the board. Dr. Gavin has been vice president. Dr. Thompson was appointed president of the board at its July-August meeting.

Public Health Conference at Madison.—On December 20-21 a Public Health Conference will be held at the Wisconsin Memorial Union Theater, Madison, under the sponsorship of the Wisconsin Public Health Council, the Wisconsin Association for Public Health, the University of Wisconsin and the Wisconsin State Board of Health. Visiting speakers include:

Haven Emerson, New York, Health Units for the Nation.
John W. Ferree, New York, Organization and Functions of a County Public Health Council.
Roscoe P. Kandle, New York, Community Health Surveys.
Vlado A. Getting, Boston, Functions of a Local Health Department.
Basil C. MacLean, Rochester, N. Y., Coordination of Hospitals and Health Departments.
George D. Cummings, Lansing, Mich., Functions of a Public Health Laboratory.
Ellis S. Tisdale, C. E., Sr., Marietta, Ga., Functions of a Sanitarian in a Local Health Department.
Frederick S. McKay, D.D.S., Colorado Springs, Colo., Fluorine in the Prevention of Dental Decay.
Paul H. Stevenson, Washington, Local Public Health Mental Hygiene Activities.
Margaret Taylor, R.N., Minneapolis, The Public Health Nurse Rations Her Time.

A panel on local health units will be held Monday afternoon and another on Local Public Health Programs on Tuesday; the visiting speakers will take part.

HAWAII

Hawaii Cancer Society.—The newly inaugurated Hawaii Cancer Society has concluded its initial membership and fund-raising campaign with proceeds totaling about $75,000. It is financing a program of cancer education to be conducted by the Department of Public Instruction. In cooperation with the Pan-Pacific Surgical Congress the society also has sponsored a public lecture on cancer.

LATIN AMERICA

New Society.—An Argentinean Society of Logopedia and Phonetics was recently established in Buenos Aires. It is concerned with the various aspects of voice, speech and hearing. The officers are as follows: Dr. Eduardo Casteran, president, and Dr. Renato Segre, secretary.

South American Neurosurgical Congress.—The third South American Neurosurgical Congress will be held in Buenos Aires March 20-27, 1949, organized by the Chair of Neurosurgery of the Faculty of Medical Sciences of Buenos Aires under the auspices of the Argentine government. Subjects of the meeting are surgical treatment of epilepsy, hemostasis in neurosurgery and lobotomies. This congress has been held every two years since 1945. The general secretary is Prof. Dr. Ramón Carilo, Neurosurgery, Paraguay 2201, Buenos Aires.

GENERAL

Gastroenterological Association Contest.—The National Gastroenterological Association is offering $100 and a certificate of merit for the best unpublished contribution on gastroenterology. Contestants residing in the United States must be members of the American Medical Association. Entries for the 1949 prize should be limited to 5,000 words, submitted in five copies accompanied by an entry letter, and must be received not later than April 1, 1949 at the National Gastroenterological Association, 1819 Broadway, New York 23.

Mississippi Valley Society Contest.—The Mississippi Valley Medical Society is offering a cash award of $100, a gold medal and a certificate of award for the best unpublished essay on any subject of medical interest and practical value to the general practitioner. Contestants, who must be members of the American Medical Association, should submit their typewritten manuscripts in five copies, not to exceed 5,000 words, not later than May 1, 1949. For further information address Dr. Harold Swanberg, secretary, Mississippi Valley Medical Society, 209-224 W. C. U. Building, Quincy, Ill.

Meeting of Pathologists.—The north central regional meeting of the College of American Pathologists will be held December 18 at the University of Illinois School of Medicine, Chicago. Subjects to be discussed include "The Medical Legal Practice of Pathology," "Relationship of the Army Institute of Pathology to the Pathologist" and three seminars, "Differential Diagnosis in Certain Lesions of Bones and Joints," "Brain Tumors" and "Diagnosis of Liver Drainage by Functional and Morphologic Methods." Brigadier General Raymond O. Dart, director of the Army Institute of Pathology, Washington, D. C., will be the visiting lecturer.

Rheumatism Foundation Drive.—The Arthritis and Rheumatism Foundation of 535 Fifth Avenue, New York 17, opened in November a four week campaign to raise at least $2,000,000 to develop a nationwide research program to discover the cause and to improve methods for the treatment, cure and prevention of arthritis and other rheumatic diseases; to establish fellowships for research teams and specialists; to develop centers for research, teaching and treatment, and to promote better medical and public understanding of these diseases. The Arthritis and Rheumatism Foundation was formulated last summer (THE JOURNAL, July 24, p. 1142).

Act to Abate Pollution of Boundary Waters.—As the result of investigations by the International Joint Commission of the pollution of boundary waters, industries in the Detroit area have made or contemplate making improvements aimed at abating industrial waste pollution and estimated to cost over $6,000,000. The International Joint Commission is a United States–Canadian body established under the terms of a 1909 "boundary waters treaty" between the United States and Great Britain. The first survey of boundary waters was made in 1911, when sewage pollution of lake waters was found responsible for the high typhoid death rates in lake cities. A board of technical advisers made up of two each from the U. S. Public Health Service, the Canadian Department of National Health and Welfare, the State of Michigan and the Province of Ontario

was established by the commission to plan and interpret more recent studies. Laboratory work and field studies in the United States were performed by the Public Health Service Environmental Health Center at Cincinnati, the U. S. Geological Survey, the Corps of Engineers, the Coast Guard and the U. S. Air Force. A statement of objectives was prepared by the board and adopted by the commission in April 1948.

Conference of Group Therapy Association.—The annual conference of the American Group Therapy Association will be held in Einhorn Auditorium of the Lenox Hill Hospital, New York, January 21-22. The conference will be preceded by a special meeting on January 21, limited to personnel of state, county and veteran hospitals, which will be given over to an analysis of aims and objectives of group psychotherapy. Ronald Lippitt, Ann Arbor, Mich., and Dr. S. H. Foulkes of the British Institute of Psychoanalysis, will be the main speakers at the Friday evening session, which will deal with "The Role of the Leader in Group Development and Therapy." Topics to be discussed at the other sessions include "Current Research in Group Psychotherapy" and "Clinical Applications of Group Psychotherapy."

Celebrate Anniversary of Kahn Test.—The Conference of State and Provincial Health Laboratory Directors at a dinner meeting November 7 in Boston observed the twenty-fifth anniversary of the first demonstration of the Kahn reaction before the American Public Health Association in 1923. Reuben L. Kahn, Sc.D., Ann Arbor, Mich., was honored at a banquet. The *Journal of the Michigan State Medical Society* devoted much of its October issue to this anniversary. Dr. Kahn developed the Kahn test for syphilis in 1923 while employed as an immunologist of the Michigan Department of Health Laboratories. He is now chief of the Serology Laboratory at University Hospital and associate professor of serology in the department of dermatology and syphilology at the University of Michigan Medical School.

Society Elections.—Officers of the Mississippi Valley Medical Society recently selected Dr. Nathaniel G. Alcock, Iowa City, president elect, and Dr. Harold Swanberg, Quincy, Ill., secretary-treasurer.——At the recent meeting of the American Academy of Pediatrics in Atlantic City, Dr. Edward B. Shaw, Berkeley, Calif., was named president elect and Dr. Warren R. Sission, Boston, succeeded Dr. John A. Toomey, Cleveland, as president. Reelected were Dr. Clifford G. Grulee, Evanston, Ill., secretary-treasurer, and Dr. Edgar E. Martmer, Detroit, assistant secretary.——At the Conference of State and Territorial Health Officers in Washington, D. C., November 14-17, Dr. Robert H. Hutcheson, commissioner of the Tennessee Department of Public Health, Nashville, was elected president succeeding Dr. Vlado A. Getting, Boston. Dr. Leroy E. Burney, state health commissioner of Indiana, continues as secretary-treasurer.

Survey of the Practice of Pharmacy.—The first section of the findings and recommendations of the survey of the practice of pharmacy has been published. The survey was inaugurated by various segments of the profession of pharmacy and the drug industry, but supervised by the American Council on Education. Funds and the work of implementing the recommendations were made available by the American Foundation for Pharmaceutical Education. A large portion of these supporting data will be published later in separate volumes. Among the recommendations in the report prepared under the direction of Edward C. Elliott, president emeritus of Purdue University, are the following: raising the standards of the admission to the nation's seventy colleges of pharmacy; more careful testing and screening of students during the early college training and encouragement of high school men and women of ability to take up the study of pharmacy; general overhauling of the present four year college pharmacy course; organization of a National Convention for Pharmaceutic sciences and increased instruction on the economic aspects of the practice of pharmacy; establishing six year college programs leading to the degree of doctor of pharmacy; creation of a Commission on Pharmaceutical Manpower to insure adequate records for the balancing of supply against demand for trained pharmacists; organization of a National Convention for Pharmaceutical Legislation to formulate uniform controls in the interest of public health, and a system of classifying colleges into A, B and C institutions.

The survey also continues a detailed analysis of more than 13,000 prescriptions assembled from 220 pharmacies, located in 186 cities, towns and villages of 39 states. The results furnish a comprehensive review of modern prescription practice and provide important data for the profession of medicine as well as pharmacy.

FOREIGN

United Nations Fights Pellagra.—The United Nations International Emergency Children's Fund has announced that it recently began to provide supplementary food to aid the cure of more than 35,000 children and women in Rumania suffering from pellagra because of dietary deficiencies. This is in addition to 400,000 who are getting one extra meal daily through the fund. Supplies are distributed through canteens set up by the Rumanian Government.

Institute Against Venereal Diseases.—Dr. Leo Dub, of the Public Health Branch, Office of the Military Government of the United States, Civil Affairs Division, Frankfurt-a.M., Germany, has organized an Institute against Venereal Disease there on request of Deutsche Gesellschaft zur Bekampfung der Geschlechtskrankheiten with the help of the military government and members of the University of Frankfurt Medical School. Besides a department of prophylaxis there will be a library, legal and editorial departments and a section to wage a medical campaign against venereal diseases. The institute has begun operation on a limited scale.

Antituberculosis Vaccination Program.—More than a half million children in Czechoslovakia, Poland and Yugoslavia were tested and half of that number vaccinated during the summer months, at the beginning of the United Nations International Children's Emergency Fund's mass vaccination program. It is being conducted as a joint enterprise with the Danish Red Cross and its Scandinavian associates, in cooperation with the World Health Organization. Work will also be under way this winter in Finland, Greece and Hungary, and negotiations are now going forward in Bulgaria, Italy and Albania. Most of the children were in the rural areas, but with bad weather ahead emphasis is shifting to the cities, where the children are more easily reached. Reports from Czechoslovakia tell that in the villages 90 per cent of the children came or were brought to the centers where the vaccination teams were working, a tribute to the local effort made to impress on the people the importance of this undertaking.

CORRECTION

International Tuberculosis Prevention.—In the Current Comment "International Tuberculosis Prevention," in THE JOURNAL, Nov. 27, 1948, page 973, line 24, the words "positive reactors" should read "negative reactors."

Marriages

CHARLES EARL MILLER, Hackettstown, N. J., to Miss Jacqueline L. Munley of Coral Gables, Fla., in Radnor, Pa., September 11.

JAMES GEORGE SULLIVAN, South Amboy, N. J., to Miss Estelle Marie Hess of Capitol Heights, Md., November 6.

HENRY M. LARSON, Morristown, N. J., to Mrs. Etta Carrington Brown Pitney in Mount Vernon, October 30.

JOHN FRANCIS DILLON, Washington, D. C., to Miss Frances Joanne Niehaus, in Arlington, Va., September 22.

MARY H. ROWLEY to Mr. William A. Busino, both of Schenectady, N. Y., in Milton, Vt., recently.

LEONARD S. SUTTON, Providence, R. I., to Miss Harri G. Marcus of New York, November 7.

FRANK J. SANZARO to Miss Patricia Ann Woodworth, both of Washington, D. C., November 6.

JOHN T. O'NEIL, Patchogue, N. Y., to Miss Elizabeth Mary McGraw of Albany, October 27.

JASON O. COOK Jr., Amherst, Mass., to Miss Jane Santway of Watertown, N. Y., October 2.

ROBERT CHANDLER LAKE, Detroit, to Miss Eleanor L. Amidon of Greenville, Mich., October 3.

MERLON A. WEBBER to Mrs. Grace L. Craig, both of Pittsfield, Maine, September 19.

RICHARD P. DOODY to Miss Catherine Elizabeth Purtle, both of Troy, N. Y., October 9.

JAMES CRAIG JOYNER to Miss Lucie Burke Alcott, both of New York, November 10.

GEORGE THEODORE SCHNEIDER to Miss Ann LeJeune, both of New Orleans, October 9.

JOSEPH TOMARKIN, to Mrs. Lenore White Gordon, both of Cleveland, August 8.

Deaths

Ross McClure Chapman ✠ Towson, Md.; born in Belleville, N. Y., July 13, 1881; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; professor of psychiatry at the University of Maryland School of Medicine and College of Physicians and Surgeons in Baltimore; specialist certified by the American Board of Psychiatry and Neurology; member and past president of the American Psychiatric Association, the American Psychopathological Association and the Baltimore County Medical Society; member of the American Psychoanalytic Association, Southern Psychiatric Association, Association for Research in Nervous and Mental Disease and the American Orthopsychiatric Association; an Associate Fellow of the American Medical Association; fellow of the American College of Physicians; served during World War I; during World War II a member of the special committee on selective service in Washington; for many years superintendent of the Sheppard and Enoch Pratt Hospital; died in the Union Memorial Hospital, Baltimore, September 24, aged 67, of carcinoma.

Richard Dingwell Freeman, Orange, N. J.; born in Dublin, Ireland, in 1866; University of Dublin School of Physic, Trinity College, Dublin, Ireland, 1890; member of the American Medical Association; fellow of the American College of Surgeons; past president of the Society of Surgeons of New Jersey; for many years affiliated with the Orange Memorial Hospital, where he founded the William Pierson Medical Library; founder of the Central Registry for Nurses; on the staff of the New Jersey Orthopedic Hospital; for many years active in the Boys Scouts of America and in 1932 received the Silver Beaver award; died October 2, aged 82, of coronary thrombosis.

Theophil Klingmann ✠ Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; specialist certified by the American Board of Psychiatry and Neurology, Inc.; fellow of the American College of Physicians; member of the Association for Research in Nervous and Mental Disease and the American Psychiatric Association; served on the faculty of his alma mater; medical director of the Mercywood Neuropsychiatric Hospital; affiliated with St. Joseph's Mercy Hospital, where he died September 19, aged 80, of cerebral thrombosis.

Louise Hopkins Meeker, Scarsdale, N. Y.; Boston University School of Medicine, 1906; Cleveland Homeopathic Medical College, 1909; specialist certified by the American Board of Pathology, Inc.; formerly on the faculty of the New York Post-Graduate Medical School and Hospital in New York; member of the American Association of Pathologists and Bacteriologists; served on the staff of New York Post-Graduate Hospital in New York; died in Grasslands Hospital in Valhalla, N. Y., September 21, aged 69, of cerebral hemorrhage.

Bernard Hyman Appel, Boston; Tufts College Medical School, Boston, 1922; member of the American Medical Association; formerly on the faculty of his alma mater; on the staff of Beth Israel Hospital; died in the Massachusetts Memorial Hospital September 3, aged 50.

Edward J. Bedell, Elsmere, N. Y.; Albany Medical College, 1893; for many years health officer of the town of Bethlehem; died September 23, aged 83, of cerebral hemorrhage.

Bernard Lincoln Branley, Tulsa, Okla.; University of Minnesota Medical School, Minneapolis, 1927; member of the American Medical Association; served in the medical corps of the U. S. Naval Reserve during World War II; at one time superintendent of health; affiliated with St. John's Hospital; died August 29, aged 48, of leukemia.

Charles Perry Burke, Eastgulf, W. Va.; Jefferson Medical College of Philadelphia, 1911; member of the American Medical Association; died September 24, aged 72.

John Carling, Los Angeles; New York University Medical College, New York, 1898; fellow of the American College of Surgeons; formerly affiliated with the Veterans Administration; died in St. Vincent's Hospital September 14, aged 81, of coronary occlusion, hypertension and carcinoma of the prostate.

Bender Zelotes Cashman ✠ Pittsburgh; Johns Hopkins University School of Medicine, Baltimore, 1909; professor of gynecology at the University of Pittsburgh School of Medicine; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; fellow of the American College of Surgeons; past president of the Pittsburgh Academy of Medicine; served during World War I; affiliated with the Elizabeth Steel Magee Hospital, St. Francis Hospital and Woman's Hospital; died October 7, aged 62.

James Newton Cliatt, Memphis, Tenn.; Louisville (Ky.) Medical College, 1891; served during World War I; died September 4, aged 80, of carcinoma of the pancreas.

Charles Frederick Cogswell, Scituate, Mass.; Harvard Medical School, Boston, 1893; died September 16, aged 83.

Peter Cortelyou Cornell, Buffalo; University of Buffalo School of Medicine, 1888; died September 24, aged 83, of congestive heart failure.

Wendell Phillips Crane ✠ Holstein, Iowa; State University of Iowa College of Medicine, Iowa City, 1929; city health physician; affiliated with the Sioux Valley Hospital in Cherokee; died in St. Joseph's Hospital, Sioux City, October 17, aged 43, of coronary thrombosis, hypertensive heart disease, diabetes mellitus and anterior poliomyelitis.

Isaac Elmer Davis, Chapman, Kan.; College of Physicians and Surgeons, Medical Department Kansas City (Kan.) University, 1897; died in Abilene August 28, aged 84, of myocarditis and cirrhosis of the liver.

Clinton Lloyd Decker, East Orange, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; formerly mayor of Boonton; served during World War I; died August 30, aged 74, of chronic myocarditis.

Paul Albinus Dineen ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1914; associate professor of clinical surgery at the Cornell University Medical College; served overseas during World War I; medical director of the International Telephone and Telegraph Company; on the staff of the New York Hospital; died in New Milford, Conn., September 20, aged 60, of cerebral embolism.

William Henry Drissen ✠ Port Washington, Wis.; Northwestern University Medical School, Chicago, 1911; for many years city and county health officer; on the staff of St. Alphonsus Hospital, where he died September 10, aged 71, of cerebral hemorrhage.

Thomas Frank Dunn, Silex, Mo.; University of Tennessee Medical Department, Nashville, 1901; died in the Missouri Baptist Hospital, St. Louis, September 25, aged 76, of carcinoma of the liver.

John William Edwards ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1907; for many years on the staff of the Swedish Hospital; died September 19, aged 79, of heart disease.

Leo Louis Elliott ✠ Paso Robles, Calif.; George Washington University School of Medicine, Washington, D. C., 1910; member of the Medical Association of Montana; formerly associated with the Indian Service; served during World War I; died August 27, aged 59, of coronary occlusion.

Francis Bartow Enneis, Jacksonville, Fla.; Loyola University School of Medicine, Chicago, 1918; member of the American Medical Association; died September 30, aged 54, of coronary occlusion.

Morris Farkas, West Orange, N. J.; Cornell University Medical College, New York, 1909; member of the American Medical Association; formerly health officer; died in the Orange (N. J.) Memorial Hospital October 6, aged 61, of arteriosclerotic heart disease.

Calvin Barstow Faunce Jr., Boston; Baltimore Medical College, 1904; member of the American Laryngological, Rhinological and Otological Society, American Medical Association, American Otological Society and the New England Otological and Laryngological Association; fellow of the American College of Surgeons; served during World Wars I and II; affiliated with the Infants Hospital, Massachusetts Eye and Ear Infirmary, Massachusetts General Hospital and the Faulkner Hospital, where he died September 22, aged 67.

Frederick Andrew Fischer, Cincinnati; Eclectic Medical College, Cincinnati, 1917; died in the Good Samaritan Hospital September 24, aged 54, of diabetes mellitus.

James Henry Fitzbutler, Chicago; Louisville (Ky.) National Medical College, Medical Department State University, 1896; Illinois Medical College, Chicago, 1904; died August 27, aged 75.

Claude Edward Fortin, Santa Monica, Calif.; McGill University Faculty of Medicine, Montreal, Canada, 1903; L. R. C. P., London, and M. R. C. S., England, 1909; died August 9, aged 69, of coronary thrombosis.

Irvin R. Fox ✠ Eugene, Ore.; University of Oregon Medical School, Portland, 1921; past president of the state board of medical examiners; member of the American College of Chest Physicians and the North Pacific Society of Internal Medicine; fellow of the American College of Physicians; on the staff of Sacred Heart Hospital; died September 21, aged 57, of coronary thrombosis.

William Mostyn Freeman, Walworth, Wis.; Rush Medical College, Chicago, 1901; died August 7, aged 70.

John Vincent Gallagher, Milford, Mass.; Tufts College Medical School, Boston, 1902; member of the American Medical Association; medical examiner for the Sixth Worcester District; on the staff of the Milford Hospital; died September 17, aged 71.

Charles R. Galloway ✠ Libertyville, Ill.; Rush Medical College, Chicago, 1892; for many years member of the library board; on the staff of the Condell Memorial Hospital; died September 26, aged 77, of carcinoma of the transverse colon and the liver.

Robert Aloysius Gaughan ✠ Hazleton, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1913; fellow of the American College of Surgeons and the International College of Surgeons; member of the founders group of the American Board of Surgery; affiliated with Hazleton State Hospital; died September 16, aged 58, of coronary occlusion.

James Charles Gower, Gainesville, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1908; member of the American Medical Association; died September 2, aged 72.

Elmer Henry Gramling, Wauwatosa, Wis.; Marquette University School of Medicine, Milwaukee, 1919; member of the American Medical Association; past treasurer of the Milwaukee County Medical Society; served on the faculty of his alma mater; formerly on the staffs of the Misericordia, Milwaukee County and St. Luke's hospitals in Milwaukee; died October 8, aged 52, of coronary sclerosis.

Otto C. Griep, Dayton, Ohio; University of Louisville (Ky.) Medical Department, 1893; died in Grandview Hospital September 18, aged 80, of cerebral hemorrhage.

William Duncan Grigsby ✠ Blaney, S. C.; Medical College of the State of South Carolina, Charleston, 1906; died in Baptist Hospital, Columbia, September 28, aged 70, of gastric ulcer.

Joseph Hanson, Detroit; Dearborn Medical College, Chicago, 1905; member of the American Medical Association; died in Saginaw, Mich., September 16, aged 72, of congestive cardiac failure and uremia.

Martin O. Hanson, Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; died August 19, aged 73, of coronary thrombosis.

Abraham Irving Haskell ✠ Louisville, Ky.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1916; assistant clinical professor of medicine at the University of Louisville School of Medicine; served during World War I; affiliated with the Jewish Hospital, where he died September 16, aged 56, of cerebral hemorrhage and hypertension.

Thomas Joseph Houlihan ✠ Ida Grove, Iowa; Rush Medical College, Chicago, 1902; past president of the Ida County Medical Society; died in St. Joseph's Hospital, Sioux City, September 2, aged 71, of right sided cardiac embolus and fracture of right hip.

George Webb Johnson, Hartsville, S. C.; University of West Tennessee College of Medicine and Surgery, Memphis, 1914; Meharry Medical College, Nashville, Tenn., 1916; died August 30, aged 59.

Frank Emerson Jones, Knoxville, Tenn.; University of Tennessee College of Medicine, Memphis, 1930; member of the American Psychiatric Association; affiliated with Knoxville General Hospital and Fort Sanders Hospital, where he died September 2, aged 43, of pulmonary tuberculosis.

Charles Joseph Kennedy, Dearborn, Mich.; Miami Medical College, Cincinnati, 1904; died September 6, aged 66, of bronchopneumonia.

Samuel Harold Korman, Brooklyn; Eclectic Medical College, Cincinnati, 1936; served on the staffs of the Kings County and Brooklyn State hospitals; died in the Beth David Hospital, New York, September 16, aged 38, of carcinomatosis.

Basil Gerald W. Larke, Rogers City, Mich.; Detroit College of Medicine, 1906; for many years township health officer; died in the University Hospital, Ann Arbor, September 5, aged 67, of carcinoma of the head of the pancreas.

Leslie Leverich ✠ Dallas, Texas; University Medical College of Kansas City, Mo., 1897; member of the Kansas Medical Society and of the Central Association of Obstetricians and Gynecologists; an Affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; past president of the Wyandotte County (Kan.) and Dickinson County (Kan.) medical societies; formerly on the staff of the Bethany Hospital in Kansas City, Kan.; died September 14, aged 82.

William Henry Long, Somerville, N. J.; Columbia University College of Physicians and Surgeons, New York, 1898; past president of the Somerset County Medical Society; for many years medical director of the public schools and county physician; for many years surgeon for the Central Railroad of New Jersey, the Lehigh Valley Railroad, the Reading Railroad and the Public Service Company; died September 7, aged 71.

Earl J. Lossing, Grand Rapids, Mich.; Grand Rapids Medical College, 1905; died August 18, aged 67, of hypostatic pneumonia and cerebral arteriosclerosis.

Otto Lowits, Newark, N. J.; Long Island College Hospital, Brooklyn, 1908; member of the American Medical Association; affiliated with the city health department; on the staff of the Newark Beth Israel Hospital; member of the Selective Service System during World War II; reappointed to examine registrants in the new draft; died September 1, aged 62, of coronary occlusion.

Gregory F. Lukianoff, Long Island City, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1923; at one time on the faculty of the University of Virginia in University, Va.; died recently, aged 52, of cirrhosis of the liver and cerebral arteriosclerosis.

Jeremiah Fletcher Lutz ✠ Glen Rock, Pa.; College of Physicians and Surgeons, Baltimore, 1894; specialist certified by the American Board of Radiology; fellow of the American College of Physicians; member of the Radiological Society of North America, Inc., and the American College of Radiology; served during World War I; affiliated with York (Pa.) Hospital; died in the Veterans Administration Hospital, Fort Howard, Md., September 11, aged 75, of arteriosclerosis.

Michael Francis Maloney, Ogden, Utah; Creighton University School of Medicine, Omaha, 1945; interned at the Queen of Angels Hospital in Los Angeles and the Thomas D. Dee Memorial Hospital in Ogden; died in Price City Hospital, Price, September 9, aged 29, of acute rheumatic fever.

Thomas Hambden Massey, Smithfield, Va.; University of Virginia Department of Medicine, Charlottesville, 1907; member of the American Medical Association; served overseas during World War I; affiliated with Buxton Hospital in Newport News and Lakeview Hospital in Suffolk; died September 18, aged 64, of paralysis.

John William Miller ✠ Paducah, Ky.; University of Louisville School of Medicine, 1927; member of the American Association of Pathologists and Bacteriologists; formerly surgeon in the U. S. Public Health Service Reserve; served during World War I; affiliated with the Riverside Hospital; died September 27, aged 48, of cerebral hemorrhage.

Ray Thomas Munger, Plainfield, N. J.; Baltimore Medical College, 1909; member of the American Urological Association; fellow of the American College of Surgeons; affiliated with Somerset Hospital in Somerville, Rahway (N. J.) Hospital, Bonnie Burn Sanatorium in Scotch Plains; on the staff of the Muhlenberg Hospital; died September 19, aged 63.

Henry Milo Newkirk, Swink, Colo.; Marion-Sims College of Medicine, St. Louis, 1897; died in Mennonite Hospital and Sanitarium, La Junta, September 7, aged 78, of cerebral hemorrhage and arteriosclerosis.

Walter Kearnes Nihart, Edgerton, Ohio; Michigan College of Medicine and Surgery, Detroit, 1906; died August 20, aged 69, of coronary thrombosis.

Lewis Augustav Oster, Hollywood, Fla.; University of Wooster Medical Department, Cleveland, 1912; died in Fort Lauderdale, Fla., September 14, aged 60, of heart failure.

Donald Robert Owen ✠ Omaha; University of Nebraska College of Medicine, Omaha, 1918; served overseas during World War II; died September 23, aged 54, of coronary thrombosis.

Percy Leigh Parsons, Traer, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1901; Chicago Homeopathic Medical College, 1902; member of the American Medical Association; died August 21, aged 72.

Adolph August Passer ✠ Olivia, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1912; died August 18, aged 68, of cerebral hemorrhage.

Edward Allen Pierce, Portland, Ore.; University of the City of New York Medical Department, New York, 1885; member of the American Medical Association and the American Trudeau Society; past president of the Oregon State Medical Society and of the state board of health; at one time attending physician at the Portland Open Air Sanatorium in Milwaukie; died September 25, aged 93.

Charles Banning Porter, St. Johns, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899; died in the Clinton Memorial Hospital September 19, aged 76, of coronary disease.

Cyrus Marion Rambo ✠ Zanesville, Ohio; Starling Medical College, Columbus, 1891; on the staff of the Good Samaritan Hospital in Bethesda; died September 20, aged 85, of infection from a tooth and splenic thrombosis.

John Wyeth Ray ✠ Houston, Texas; Louisiana State University Center, New Orleans, 1938; served in the medical corps, Army of the United States, during World War II; died August 20, aged 40.

Jay Verne Rice, Wellsville, Ohio; University of Louisville (Ky.) School of Medicine, 1910; formerly health commissioner of the city of Wellsville; died in Birmingham, Ala., September 1, aged 66.

Eduard Rischar ✠ Cameron, Texas; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1900; fellow of the American College of Surgeons; formerly owner of the Cameron Hospital; died August 1, aged 76.

James E. Robbins, Stillwater, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1893; formerly affiliated with the Danville (Pa.) State Hospital and the Wernersville (Pa.) State Hospital; died in the Bloomsburg (Pa.) Hospital August 27, aged 86, of hypostatic pneumonia.

Luke C. Roberts, Jonesville, Ky.; Louisville Medical College, 1901; member of the American Medical Association; died August 22, aged 73, of cerebral hemorrhage.

Thomas Erle Rucker, Lynchburg, Va.; Medical College of Virginia, Richmond, 1902; member of the American Medical Association; served during World War I; died September 4, aged 67, of carcinoma of the throat.

Frank Theodore Schowengerdt ✠ Cortland, Neb.; Marion-Sims-Beaumont Medical College, St. Louis, 1902; past president of the Gage County Medical Society; formerly member and president of the school board; at one time mayor of Cortland; served on the staffs of the Mennonite Deaconess Home and Hospital in Beatrice, Bryan Memorial Hospital and St. Elizabeth Hospital in Lincoln, where he died September 12, aged 72.

Abraham W. Schram ✠ Chicago; Rush Medical College, Chicago, 1896; associate clinical professor of medicine at the Loyola University School of Medicine; specialist certified by the American Board of Internal Medicine; for many years active in the Chicago Health Department; on the staff of the Mercy Hospital; died September 4, aged 73, of cerebral hemorrhage.

Harry Will Shryock, Seattle; Denver College of Medicine, 1900; member of the American Medical Association; served during World War I; for many years on the staff of the Firland Sanatorium; died September 30, aged 76.

Straut Watson Shurtz, Champaign, Ill.; Rush Medical College, Chicago, 1893; member of the American Medical Association and of the Fifty Year Club of the Illinois State Medical Society; formerly affiliated with Champaign County Hospital in Urbana; died in Burnham City Hospital September 24, aged 81, of diabetes mellitus, arteriosclerosis and myocarditis.

Crandall P. Sisco ✠ Springdale, Ark.; University of Arkansas School of Medicine, Little Rock, 1911; director of the First State Bank; on the staff of the City Hospital in Fayetteville; died August 24, aged 61, of arteriosclerotic heart disease.

William Wilson Sisserson, Yardley, Pa.; Medico-Chirurgical College of Philadelphia, 1916; served during World War I; surgeon in the U. S. Public Health Service reserve during World War II; formerly on the staff of Muhlenberg Hospital in Plainfield, N. J.; in charge of the Veterans Administration outpatient department in Trenton, N. J., where he died September 2, aged 56, of myocardial infarction.

Homer William Smith ✠ Rochester, N. Y.; University of Buffalo School of Medicine, 1913; served with the city health department; examining physician for the Selective Service during World War II; affiliated with Monroe County Hospital and the Park Avenue Hospital, where he died September 5, aged 63, of coronary sclerosis.

James Arthur Smith, Chattanooga, Tenn.; University of Louisville (Ky.) Medical Department, 1912; member of the American Medical Association; served during World War I; died in Erlanger Hospital August 26, aged 64, of bronchopneumonia.

John Augustus Sperry, San Francisco; Medical Department of Tulane University of Louisiana, New Orleans, 1905; member of the American Medical Association; affiliated with the Children's and Stanford University hospitals; died September 29, aged 66.

Seymour Leopold Spier, New Haven, Conn.; Yale University School of Medicine, New Haven, 1904; for many years police surgeon; died in the Undercliff Sanatorium, Meriden, September 22, aged 76, of carcinoma of the rectum and pulmonary tuberculosis.

Walter David Spoor ✠ Schenectady, N. Y.; Denver Homeopathic College, 1896; died in the Ellis Hospital August 11, aged 73, of uremia.

Thomas Alexander Steele, McKeesport, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1901; an officer during World War I; served a term in the state legislature; died in the Veterans Administration Hospital, Aspinwall, August 7, aged 68, of hypertensive cardiovascular disease.

Albert Henry Steffens, Anaheim, Calif.; Barnes Medical College, St. Louis, 1900; also a dentist; died October 2, aged 74, of injuries received when he was struck by an automobile while crossing the street.

Lewis H. Sterner, Hanover, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1889; member of the American Medical Association; on the staff of the Hanover General Hospital; died August 27, aged 84, of leukemia and heart disease.

Axel Waldemar Swenson, Van Nuys, Calif.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1901; served during World War I; died August 22, aged 72.

Phillips Jackson Tunnell, Norwalk, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1923; died in Barlow Sanatorium, Los Angeles, August 6, aged 49, of tuberculosis.

George Oscar Wallace, Clayton, Ala.; Medical College of Alabama, Mobile, 1891; member of the American Medical Association; at one time probate judge of Barbour County, member of the county board of education and county health officer; died September 7, aged 80, of embolism and pyelonephritis.

Richard William Walt ✠ North Hollywood, Calif.; University of Southern California School of Medicine in Los Angeles in 1942; interned at the San Bernardino (Calif.) County Charity Hospital; an officer in the medical corps, Army of the United States, during World War II; affiliated with St. Joseph's Hospital in Burbank, Glendale Sanitarium and Hospital and Behrens Memorial Hospital in Glendale; on the attending staff of Los Angeles County Hospital; died August 16, aged 32, of injuries received in an automobile accident.

Robert Hanford Waterfield, New York; Columbia University College of Physicians and Surgeons, New York, 1933; member of the American Medical Association and the American Psychiatric Association; affiliated with the Lenox Hill Hospital, where he died August 18, aged 52, of acute coronary occlusion.

Mortimer Harold Weiss ✠ Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1925; served during World Wars I and II; on the staff of the Beth Israel Hospital; died August 6, aged 48, of cerebral hemorrhage.

Ewald Alfred Sigmund Werner ✠ Los Angeles; College of Physicians and Surgeons, medical department of the University of Southern California, Los Angeles, 1910; affiliated with the Good Samaritan and California Lutheran hospitals; served during World War I; died in Veterans Administration Hospital, Van Nuys, August 30, aged 61, of acute myocardial infarction.

Benedict Nolasco Whipple ✠ Bristol, Conn.; Yale University School of Medicine, New Haven, 1907; fellow of the American College of Surgeons; on the staff of Bristol Hospital; died August 4, aged 63, of myocardial infarction.

Raymond R. Whitten ✠ Ionia, Mich.; Detroit College of Medicine, 1912; affiliated with Ionia County Memorial Hospital; died in Blodgett Memorial Hospital, Grand Rapids, September 11, aged 63, of rheumatic heart disease with mitral stenosis.

Oliver Benjamin Winkler, Lebanon, Ill.; St. Louis University School of Medicine, 1927; member of the American Medical Association; affiliated with the Christian Welfare Hospital in East St. Louis; died September 9, aged 47.

James Craven Wood, Cleveland; University of Michigan Homeopathic Medical School, Ann Arbor, 1879; member of the American Medical Association; fellow of the American College of Surgeons; served on the staff of the Huron Road Hospital in East Cleveland; died in Shaker Heights, Ohio, August 29, aged 90, of cerebral hemorrhage and arteriosclerosis.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 30, 1948.

The Streptomycin Treatment of Tuberculosis

A most important report on the streptomycin treatment of tuberculosis has been published by the Medical Research Council in the *British Medical Journal*. The inquiry was planned and directed by the Streptomycin in Tuberculosis Trials Committee. The work was carried out by clinicians and pathologists in various hospitals. Only once before has any drug been submitted to a controlled trial in this variable and unpredictable disease. This was in 1931, when gold treatment of tuberculosis proved unsuccessful. The present trial was restricted to patients aged 15 to 30 years, with acute progressive tuberculosis of both lungs unsuitable for collapse therapy, a type of case hitherto treated only by rest in bed. Such cases are not common, but 107 patients were chosen in various hospitals. Treatment was carried out at seven centres, 55 patients being allotted to the streptomycin group and 52 to the control group. To avoid any possible bias each patient's group was decided by a statistician using an ingenious system of sealed envelopes. Progress was estimated from the roentgenograms by independent radiologists and clinicians, who did not know from which group the films came.

All the patients were kept in bed on the same general regimen, but the streptomycin group received 2 Gm. of streptomycin daily by intramuscular injection, usually for 4 months. The results were assessed after 6 months. By then 4 streptomycin and 14 control cases were fatal—a difference that would not occur by chance once in 100 times. Considerable improvement was observed in 51% of the streptomycin cases but in only 8% of the controls. This difference was almost entirely accounted for by the remarkable efficacy of streptomycin in patients most seriously ill at the time of the trial. After a year 12 streptomycin patients and 24 controls were dead and the proportion of cases improved had risen to 31% in the controls, whereas in the streptomycin cases the figure was much the same, 56%. The toxic effects of streptomycin, which have been troublesome and dangerous in some other trials, were never severe enough to necessitate cessation of treatment.

Streptomycin can be of great value in acute phthisis, especially early cases before cavities form in the lungs. It is not a "cure" for tuberculosis, nor does it render other treatment obsolete. It must be used with discrimination. Under the treatment the ordinary streptomycin-sensitive bacilli are fairly rapidly replaced by resistant bacilli. This means that the drug may be effective only once during the illness, and the time to give it must be carefully chosen. For the community it means the danger of unsuccessfully treated patients disseminating streptomycin-resistant organisms to others, producing a large number of cases which do not respond to the drug.

Congress of Obstetrics and Gynecology

The twelfth British Congress of Obstetrics and Gynecology will be held in London on July 6-8, 1949, under the presidency of Sir Eardley Holland. The Congress will be declared open by the Minister of Health at 10 a. m. A discussion on modern trends in gynecology will then be introduced by Mr. C. McIntosh Marshall (Liverpool), on "Modern Caesarean Section." At 2 p. m. Dr. Joe Meiggs (Massachusetts) will read a paper. A discussion on pregnandiol will be introduced by Prof. G. F. Marrian, F.R.S. (Edinburgh) and Dr. G. I. M. Swyer (London). On July 7, Prof. G. W. Pickering and Prof. F. J. Browne (London) will introduce a discussion on essential hypertension in pregnancy. At 2 p. m. a discussion on hernia of the pouch of Douglas will be introduced by Mr. C. D. Read (London). One on the management of pregnancy in diabetics will be introduced by Mr. J. H. Peel (London) and Prof. D. M. Dunlop (Edinburgh). On July 8, Dr. J. E. Ayre (Montreal) and Dr. F. G. Spear (Cambridge) will introduce a discussion on the diagnosis and prognosis of carcinoma of the uterus. In the afternoon there will be a discussion on maternal mortality.

The honorary secretaries of the Congress are Mr. A. J. Wrigley, F.R.C.S., and Mr. I. M. Jackson, F.R.C.S., to whom the names of those who hope to attend the Congress should reach by March 31, 1949, at the Royal College of Obstetricians and Gynecologists, 58 Queen Anne Street, London, W.

THE NETHERLANDS

(From Our Regular Correspondent)

Oct. 22, 1948.

Organization of Rh Investigation

In 1946 Dr. J. J. van Loghem Jr., one of the cooperating physicians of the Central Laboratory of the Dutch Red Cross blood transfusion service, undertook to bring together physicians who were interested in the Rh question.

The first meeting, which was attended by a great number of specialists, was presided over by Professor Pondman (Groningen) who started the Rh work in Holland during the war, in 1943, after the thesis of Broman (Sweden) had brought the discovery of this new blood group to the notice of the Dutch serologists. Professor Pondman, who was at the time head of the serologic department of the government's Institute of Public Health in Utrecht, had to contend with many difficulties owing to the entire lack of foreign literature.

In this first meeting a committee was asked to set up an organization to keep the Dutch physicians informed of the progress of the investigations and to promote cooperative research. A program was drawn up, and a few months afterward two members of the committee issued a publication in which they summarized facts concerning the Rh question in other countries, especially in America and the United Kingdom. The serologic investigations were concentrated in the Central Laboratory of Blood Transfusion in Amsterdam under the direction of van Loghem.

From July 1946 to July 1948 the blood of 1,958 families presenting a history of suspected erythroblastosis fetalis was examined. In 980 cases the father was found to be Rh positive and the mother Rh negative. In 707 cases Rh antibodies were detected in the serum of the sensitized mothers. Only in a few cases of active Rh antagonism, Rh antibodies were not detected in the serum of the mother. Rh tests were made on 11,840 donors of forty-five blood transfusion centers. The percentage of Rh-negative persons amounts to 14.2 (rr or cde/cde). In 12 cases Rh antagonism was proved to be the cause of transfusion reactions. In a great number of cases, in which repeated transfusion was necessary, the Rh factor was determined preventively.

It was particularly in the application and the study of exchange transfusion that favorable results of close collaboration became manifest. When in the beginning of 1947 it appeared from American publications that the prognosis for newborn infants affected with hemolytic disease was improved considerably by the application of exchange transfusion, the working committee tried to use this treatment in Holland on a large scale. In one year and a half one hundred and twenty-four exchange transfusions were performed by thirty-three pediatricians, gynecologists and internists. The death rate decreased from 63.5 to 14.5 per cent.

Under the auspices of the working committee for Rh investigations about two hundred physicians and technicians from fifty-five different medical centers have received a course of

instruction in Amsterdam in order to acquire the technic of determining the D antigen and examining the serum on complete and incomplete antibodies (by means of the serum of Coombs).

To the scientific program of the Rh department of the Central Laboratory in Amsterdam belongs especially the production of rare Rh test serums by means of artificial immunization of volunteer donors.

Recently J. J. van Loghem published in the *British Medical Journal* (Aug. 14, 1948) a preliminary note on influence of heterospecific immunization on production of Rh antibodies. He proved that the production of these antibodies is stimulated by the administration of bacterial antigens (triple vaccine, typhoid and paratyphoid A and B) and tetravaccine (which includes cholera). In general, only those persons who reacted clinically and serologically to the administration of these vaccines produced Rh antibodies.

Especially noteworthy is the cooperation in this scientific program of a group of female volunteers, three nuns belonging to the Congregation of the Divine Child in Amsterdam. One of them formed a pure C antibody of the hyperimmune form after twenty injections over a period of three and a half months with a titer of 1:128.

OSLO

(From Our Regular Correspondent)

Nov. 17, 1948.

The Jacobaeus Memorial Lecture

Professor Jacobaeus died in the autumn of 1937, only 58 years old. In recognition of his outstanding contributions to medicine, the Nordisk Insulin Fund created in 1939 the H. C. Jacobaeus Memorial, the statutes of which provide for a lecture every year by one who has distinguished himself in some field of medicine. The lecture is delivered in rotation in one of the Scandinavian university towns or some other center of scientific medicine. The first lecture was delivered in 1942 in Sweden by Professor Key, who spoke about the contribution which Jacobaeus had made to the surgery of the chest. The second lecture was delivered in Copenhagen in September 1947 by Professor C. H. Best of Toronto. This year an invitation was given to Professor F. G. Young of University College, London, to lecture on the relation of the pituitary gland to diabetes mellitus. This lecture was delivered on October 5 at the Rikshospital in Oslo. Among the foreign members of the audience were Dr. Hagedorn of Copenhagen and Professor Odin of Gothenburg. Professor Olav Hanssen of Oslo was in the chair.

Vaccinia from Boxing?

On November 3 Dr. Per Hanssen, of the Isolation Department of the Ullevaal City Hospital, gave the Norwegian Medical Society an account of the case which gave rise to a nationwide smallpox scare in Norway late last September. The patient was a young Norwegian soldier who took part in an international boxing competition in London September 15-17. On September 20 he noticed a rash on his face for the first time. He continued to be up and about, feeling well, but on his return to Norway a few days later a pustular eruption on his face, neck and right arm at once aroused suspicion and led to his isolation in hospital on September 25. The experts agreed that the eruption was due to either vaccinia or variola, but they could not say more. Laboratory tests in London of material sent by air from Norway pointed to a vaccinia infection, and the absence of any case of variola among the many persons with whom the patient had came in contact before he was isolated left no doubt as to the infection's being vaccinia. Dr. Per Hanssen suggested that the source of this infection may well have been the boxing gloves of one or other of the patient's combatants, but he has so far been unable to ascertain whether any of them had been recently vaccinated before boxing with the Norwegian. The smallpox scare on this occasion was all the greater for the fact that vaccination has of late been much neglected in Norway, largely on account of the fear of vaccination encephalitis.

BRAZIL

(From Our Regular Correspondent)

Rio de Janeiro, Oct. 8, 1948.

New Technic for Immunization to Yield Rh Antibodies

Drs. Mario P. Mesquita and Vera Leite Ribeiro, of the Blood Bank of the Fernandes Figueira Pediatric Hospital, Rio de Janeiro, published a report describing a new technic for the immunization of guinea pigs to yield Rh antibodies. The inactivated serums of 25 normal adult guinea pigs diluted to 1:4 was used for the agglutinating tests with 2 per cent suspensions of rhesus red cells in final dilution from 1:5 to 1:80. The citrated blood of the monkeys was first filtered through sterilized gauze and then centrifuged and washed, the centrifugation and washing being repeated several times. After each centrifugation the separated red cells were mixed with more isotonic sodium chloride solution and transferred to another tube, the sediment containing some stroma and broken red cells being abandoned in the first tube. The washing of the red cells was continued until the supernatant fluid did not show the slightest trace of albumin. By this technic, a much higher sensitivity of Rh agglutinins was disclosed at 5 C. than at 37 C., which confirms the previous findings of Diamond and Abelson. In addition, absorption tests disclosed that such enhanced sensitivity derives fundamentally from specific properties of Rh agglutinins and not from a nonspecific cold agglutination. The production of serum by the new technic is still under study before its utilization for diagnostic purposes.

While they were waiting for this serum and still using serums of American manufacture, the writers reported that among 220 white adults, Brazilian-born residents of Rio de Janeiro to be selected for the group of blood donors of the Fernandes Figueira Hospital, the Rh factor reaction was negative in 28 cases, or 13.2 per cent. Previous results reported recently in Brazil in similar conditions by Ottensooner and Pasqualin (São Paulo, 1934, 47 examinations), by Lacaz, Ferreira, Malone and Yahn (Rio de Janeiro, 1946, 445 examinations), again by Ottensooner and Pasqualin (São Paulo, 1947, 1,919 examinations), and by the present writers (Rio de Janeiro, 1947, 212 examinations) showed negative percentages of 15.0, 14.2, 14.7 and 13.2, respectively, which gives the general average negative rate of 13.93 per cent for the combined sample of 1,115 persons from the two greatest cities of Brazil.

Sanitary Conditions of Drinking and Eating Utensils

Dr. Dacio A. Christovam, assistant professor of microbiology at the School of Public Health and Hygiene, São Paulo, published a report on the sanitary conditions of drinking and eating utensils in that city's central district. The study included thirty-two cafés and bars and twelve restaurants. A total of 1,568 utensils taken at random from the washed and disinfected material was examined, in lots of 7 each. At the cafés and bars the total bacteria counts of cups and glasses were respectively 3,863 and 85,331, the average per lot reaching 88,400 for cups and 720,000 for glasses, as against the average number of 100 bacteria per utensil, which is the standard proposed by the American Public Health Association. Only 14.1 per cent of the lots of cups could be considered satisfactory, and none of the lots of glasses complied with the standard. The average

temperature of the so-called "sterilizers" for cups was 58.4 C., and 42 and 72 C. were the extreme temperatures found. At the restaurants the average number of bacteria in glasses, dishes, forks and spoons were respectively 45,851, 86,527, 6,613 and 9,095. The maximum averages were 224,000 for glasses, 736,000 for dishes, 55,000 for forks and 62,000 for spoons. Only one lot of glasses of all the material examined from restaurants could be considered satisfactory.

Pneumococci were found in 3.1 per cent of the lots of cups from the cafés and bars and in 4.2 per cent of the lots of glasses and forks from restaurants; hemolytic streptococci in 45.3 per cent of the lots of glasses and in 18.8 per cent of the lots of cups from the cafés and bars, and respectively in 8.3 per cent, 16.7 per cent and 8.3 per cent of the lots of glasses, forks and spoons from the restaurants; pathogenic staphylococci in 15.6 per cent of the lots of glasses and in 21.9 per cent of the lots of cups from the cafés and bars, and in respectively 8.3 per cent, 16.7 per cent, 4.2 per cent and 12.5 per cent of the lots of glasses, dishes, forks and spoons from the restaurants. Tubercle bacilli were not isolated. Coliform organisms were found in 40.7 per cent of the lots examined.

The high number of bacteria present in all types of utensils and the high percentages of lots in which pathogenic microorganisms were found reveal a serious public health problem. They are simply the result of the crude methods of washing and the lack of any attempts at disinfection observed in the course of the study. Dr. Christovam proposes the adoption of simple, efficient methods of washing and disinfection, using hot water from 77 to 82 C., and inorganic chlorine compounds in solutions of 50 to 100 parts per million.

BOLIVIA

(From Our Regular Correspondent)

LA PAZ, Oct. 18, 1948.

Food Problems

Several studies on the subject of diet were made here in Bolivia, the most important one by a mixed Bolivian-American mission, led by the Hon. Alvert Magruder (Boston) and another one by the National Commission of Bolivia. Their figures were based mainly on research on the urban population, the miners, railroad men and other industrial workers, a group comprising about half of the country's population.

According to those investigations the average daily ration contained only 1,200 calories, 72 per cent of which were provided by carbohydrates, 15 per cent by fats and the remaining 13 per cent by proteins, mostly of vegetable origin. According to the relatively optimistic figures of the National Commission the absolute weights of each factor were: 210 Gm. carbohydrates, 12 Gm. animal proteins, 28 Gm. vegetable proteins and 21 Gm. fat. Thus, not only was the protein intake 50 per cent under the accepted standards, but its relation to the amount of carbohydrates was unsatisfactory, too.

Equally unsatisfactory were vitamin values: vitamin A, 5,820 international units; vitamin B_1, 1.1 mg.; vitamin B_2, 0.9 mg.; nicotinic acid, 9.7 mg.; vitamin C, 98.0 mg., and vitamin D, 11 international units.

Calcium contents remained at only 25 per cent of the standard requirements, while iron intakes were only one third of the normal. The average weight of a full day's ration was only about 700 Gm., and the per capita quota of milk 73 Gm. per day. Relatively well fed were miners, who received a daily average of 2,500 calories, which is still an unsatisfactory quantity for a heavy worker. This group at least received proper amounts of proteins and iron. Because of the continual undernutrition of prospective mothers the birth weights of babies remained relatively low too. Between 7 and 37 per cent (according to different surveys) of the babies born at term weighed less than 2,800 Gm.

The principal cause for this continuous undernutrition was the surprisingly low average income, which was sufficient only to cover the cost of 1,200 calories without leaving any additional allowances for other expenses. There was, for example, but 0.5 per cent of the population who could afford 3,000 calories a day for themselves and for their families as well, without interfering with their other living expenses. About 72 per cent of the investigated group did not earn enough to supply 2,600 calories. In the lowest income group, and thus in the worst fed group, belongs the population of the Indian race. The surprising difference between living costs and incomes is partly due to the fact that nearly 90 per cent of all the consumed food had to be imported from abroad in high prices; this situation could be improved only by creating farms in the vast but scarcely inhabited territory. Besides there is a complete lack of any knowledge as to the ways of rational feeding among the common people. Physical conditions among the native Indian population are continually becoming worse, and today's Indian can hardly be compared in any way, either physically or intellectually, to his famous ancestors, the Incas.

The Coca Leaf

According to estimates made by the Minister of Health, there is in Bolivia a yearly production of some 3,000 tons of coca leaves (Erythroxylon coca, also called the "divine plant of the Incas"). The coca leaf has an estimated cocaine content of 0.75 per cent; thus there are yearly some 23 tons of cocaine grown, shipped and sold.

Those natives who habitually chew coca leaves claim to be able to carry heavy loads for long distances without tiring. It is not surprising to see a native carrying a box of some 200 pounds. The natives also claim that the continuous use of the coca leaves improves their visual acuity, preserves their teeth, and helps them to avoid baldness; indeed, their visual acuity is often surprisingly high; few Indians show any caries at all, and it would be hard to find a bald man among the natives of the high plateau, where most of the coca is consumed. Finally, the natives claim that their well known stoicism and resignation is due to the use of coca.

Their claims are, for understandable reasons, strongly supported by the coca producers. This group recently ordered an analysis of the leaves to establish their nutritive values and succeeded in proving that the leaves contain certain amounts of vitamins A, B_1, riboflavin, pyridoxine, biotin, ascorbic acid and vitamin E. Thus the erroneous impression was created that these leaves might eventually serve as food. Unfortunately, the producers forgot to mention that the average workman at the high plateau chews some 50 Gm. of coca leaves a day, with an estimated alkaloid content of some 370 mg. Supposing that only half of this cocaine would be absorbed by the body, there would be still a daily intake of about 180 mg., an amount well above the daily allowances of the U. S. Pharmacopeia, and this amount is being ingested day after day, year after year. Many a man remains thus in a state of continuous and complete anesthesia, and it is not surprising at all to see a workman removing a foreign body from his own cornea by means of a hair without experiencing any pain whatsoever.

There is no manufacturer in this country who would extract the pure alkaloid for commercial or pharmaceutic purposes; thus the producers, who fear for their markets, insist on selling their production to the workmen, their largest consumers, besides exporting small quantities to Argentina. The situation in some of the neighboring republics, especially Peru, is almost identical.

Correspondence

DERMATITIS DUE TO MESANTOIN

To the Editor:—In an article entitled "Fulminating Dermatitis Bullosa Medicamentosa Due to 'Mesantoin'" (in THE JOURNAL, July 17, p. 1031), Dr. Dave B. Ruskin reported a fatality presumably due to "mesantoin" (methylphenylethyl hydantoin). As one who introduced this anticonvulsant drug into medicine and who has been continuously studying it clinically since 1943, I wish to comment on this report.

The exceptional dermatologic history of this patient is extremely important to an understanding of the case, and certain points are so significant that they deserve to be reviewed: 1. "At age 4 the patient had whooping cough and another unidentified illness associated with a rash." (Could this have been a drug rash?) 2. At about 6 years of age, she was given diphenyl hydantoin sodium ("dilantin") and phenobarbital, and "a rash and ataxia developed with either drug." 3. When she was approximately 7½ years of age (only six months before her fatal illness) a "rash" had developed from sulfonamide drugs given to her for acute pharyngitis.

This careful history by Dr. Ruskin clearly brings out the fact that this patient had already shown dermal sensitivity to a variety of drugs. It also emphasizes the need for observing the warning given in my interim report (as published in THE JOURNAL, Oct. 25, 1947) that the drug ("mesantoin") should be given with caution to patients who have previously had a generalized rash.

I agree with Dr. Ruskin that "this complication does not necessarily depend on the administration of a larger dose." Later experience has shown that extremely small dosages can initiate a rash in skin-sensitive patients. The severity and duration of the rash are dependent, to a large extent, on the degree of the patient's sensitivity and are not necessarily related to the amount of drug ingested.

I disagree with Dr. Ruskin that "all" patients should receive blood examinations during treatment with this drug. This implies that "mesantoin" is primarily toxic to the blood or blood-forming organs. Clinical studies show that the drug is toxic neither to the hemopoietic system nor to the derma when given in appropriate dosage to properly selected patients. It is my opinion that blood changes or skin reactions occurring singly or in combination are due to individual hypersusceptibility. Additional experience is necessary before it can definitely be determined whether severe skin reactions and marked blood changes (as in Dr. Ruskin's case) always occur together or whether serious dermal lesions can occur independently of blood changes.

For the present time, I suggest the following conservative plan of treatment which need be applied only to patients within the following groups: (1) patients giving histories of previous drug reactions, regardless of the type of reaction or nature of the drug; (2) patients having histories of generalized rash, whether due to drugs (as in Dr. Ruskin's case) or to unknown causes; (3) patients who have never taken drugs of the hydantoin or barbiturate groups, and (4) patients requiring over 9 grains (0.58 Gm.) of "mesantoin" daily.

PLAN OF TREATMENT

1. All patients in the group should be given weekly blood examinations for approximately the first sixteen weeks of treatment. To my knowledge, only 1 published case of toxicity has been manifested after this period of time (Dr. R. B. Aird's patient). 2. Not only are the blood examinations important, but these patients must also undergo repeated complete physical examinations, during this initial period of treatment, in order to detect any other early toxic manifestations. 3. This drug or any chemically related drugs should be given "in small doses and increases should be made slowly and in small increments," as suggested by Dr. Ruskin.

In the clinical investigations of "mesantoin," thousands of complete blood studies, done repeatedly on hundreds of patients by myself and many others, do not support the view of subjecting all patients to repeated blood examinations during treatment. Of course, one initial blood examination should be done routinely on all patients before beginning treatment. I am especially concerned in seeing that the facts about individual susceptibility to the drug are not confused with those relating to its therapeutic index: "Mesantoin" has relatively low toxicity, being tolerated in larger doses than either diphenylhydantoin or phenobarbital. An unfounded alarmist attitude may impede the use of a drug which has been shown to be of definite value in the control of grand mal type epilepsy by the following investigators: H. R. Carter, T. H. Harris and J. L. Otto, H. L. Kozol, W. S. Littlejohn and co-workers, K. O. Von Hagen, J. L. Fetterman, and many others. Several additional studies are being prepared for publication which, I believe, will support this opinion.

In conclusion, clinical evidence suggests that some patients exhibit an individual hypersusceptibility to "mesantoin." With proper caution, as already outlined, many of these cases can be managed satisfactorily. Dr. Ruskin should be complimented on the thoroughness of his report and for stimulating a discussion of the actions of "mesantoin" as well as placing an important reemphasis on the precautions to be taken for insuring successful therapeutic results. It should be remembered that cases of hypersusceptibility have been reported with the use of practically every active drug in the pharmacopeia.

ANTHONY E. LOSCALZO, M.D., New York.

Medical Motion Pictures

FILM REVIEWS

Medicine in the Tropics. 16 mm., color, sound, 880 feet (1 reel), showing time twenty-five minutes. Produced in 1948 by the Lewis Sound Films for the Firestone Tire & Rubber Company. Technical adviser, K. H. Franz, M.D. Procurable on loan from: The Firestone Tire & Rubber Company, Department of Public Relations, Akron 17, or Association Films, 347 Madison Ave., New York 17.

This motion picture depicts diseases of the tropics and is based on the medical program of the Firestone plantations in Liberia. A patient is shown with the diagnosis of amebic abscess of the liver which has been made by roentgenogram, but the film is not shown. The patient is submitted to surgical treatment; however, in most cases of hepatic abscess, surgical treatment is contraindicated. A manual of tropical medicine states, "the high mortality previously associated with abscess of the liver was in a large part due to the universal use of open drainage. With the advent of emetine and the use of repeated aspiration of the cavity, the mortality has been reduced to 2 per cent." There is no mention of medical treatment for this condition in the motion picture.

Sleeping sickness is discussed and enlarged lymph nodes demonstrated. A lymph node is aspirated but the organism is not shown. The tsetse fly is mentioned but not illustrated. There are 3 cases of smallpox shown which make an excellent clinical demonstration. For medical students in the United States these smallpox cases alone make the picture worth while. A patient with elephantiasis of the scrotum is demonstrated but neither the causative agent nor the vector is shown.

This film is especially well done; it is artistic and the photography is superb. The geography of Liberia and the customs of its people are well portrayed. Natives tapping drums form a fitting introduction.

The film would be suitable for first and second year medical students and groups of nurses. The demonstration of nude patients makes it unsuited for lay audiences. The main portion of this film could be used as a basis for two separate pictures,

one for the laity and one for the medical profession. For the first film simply omit the nude patients. For the medical profession some revision along the lines suggested would convert it into a valuable scientific contribution.

Nursing Care in Poliomyelitis. 16 mm., color, sound, 2,456 feet (4 reels). Produced in 1947 by The University of Illinois, Division of Services for Crippled Children, under a grant from the National Foundation for Infantile Paralysis. Procurable on loan or purchase from The University of Illinois, Division of Services for Crippled Children, 1105 South Sixth Street, Springfield.

The Acute Stage, reel I, 721 feet, showing time twenty minutes.

The nursing care of a patient in the acute stage of poliomyelitis is presented, showing the arrangement of the bed, the manner of giving hot packs, the use of pillows, sand bags, foot boards and other devices to be used in maintaining good posture in bed and the manner of changing the position of the patient when that is necessary. Other details shown are the use of the bed pan, the use of the aspirator for accumulation of mucus, special arrangements in cases of bulbar involvement and the feeding by way of a tube passed through the nose and esophagus. At times the technics become rather elaborate; nevertheless, the care with which every detail is demonstrated deserves commendation.

Treatment of Spasm, reel II, 786 feet, showing time twenty-one minutes.

Excellent illustrations of spastic activity in muscles are shown. Details of administering hot packs are demonstrated. There is an elaborate section on passive motion which is especially commendable for the painstaking detail, in which each part is exhibited. Finally, there are some views showing the use of the tub as a substitute for the hot packs.

Care of the Respirator Patient, reel III, 570 feet, showing time fifteen minutes.

This reel deals with the preparation of the respirator, the processes of introducing the patient into the respirator, the technic of using the bed pan and similar details of nursing care, the technic of catheterization and, finally, the preparations for storing the respirator. The need of testing the various parts of the respirator at regular intervals during storage to make sure that there will be no deterioration is emphasized.

The Convalescent Stage, reel IV, 379 feet, showing time eleven minutes.

This section of the film illustrates the manner of applying splints to prevent deformity, the use of a special type of pillow to permit the patient to read and work in the prone position, the use of the bed trapeze for exercise, the administration of underwater exercise in tanks, the use of balloons and bottles for respiratory exercises and the administration of various neuromuscular tests in order to assess the degree of recovery in the patient before dismissal. The closing scene shows a nurse giving instructions to the parent of a child being discharged from the hospital.

These four reels with emphasis on technic in the care of patients with poliomyelitis are well planned. They should be instructive to physicians, third and fourth year medical students, nurses and physical therapists, who may not always appreciate how elaborate the procedure must be if the patient is to have the best possible care and spared unnecessary suffering.

Photography is good to excellent.

Mother and Her Child. 16 mm., color, sound, 2,100 feet (1 reel), showing time fifty-eight minutes. Produced in 1947 for the Division of Child and Maternal Health, Department of National Health and Welfare by The National Film Board of Canada. Procurable on rental or purchase from National Film Board of Canada, 400 West Madison Street, Chicago 6.

This film is designed to show young women contemplating, or beginning pregnancy, the problems encountered in the nine months of pregnancy and in the first year of the life of the child. The problems are well chosen and their answers well given covering both obstetrics and pediatrics from the point of view of parents of a first baby. The fact that it is produced in Canada for Canadian audiences will not decrease its usefulness for United States audiences in any large degree.

There are a few weaknesses found in this production; however, they cannot be seriously criticized. In the film the father's ineptness is accepted goodnaturedly, though he could just as well be trained to be much more skilful in assisting in the care of the baby. The mixing of the orange juice with the cod liver oil is questionable, although it is successfully done in many instances.

This motion picture is well done and should be useful for showing to groups of prospective parents. Since it is rather long it might have been better to have made the film in two parts showing, first, the prenatal care and, in the second part, the delivery and the after-care of the newborn infant.

Generally speaking, the color quality of the motion picture is fair to good.

Surgery in Facial Cancer. 16 mm., color, silent, 425 feet, showing time seventeen minutes. Prepared 1936-1947 by Tibor de Cholnoky, M.D., Postgraduate Medical School and Hospital, Columbia University, New York. Procurable on loan from the author, 19 East 80th Street, New York.

This motion picture demonstrates 3 cases of recurrent facial cancer treated by electrosurgical excision, following which plastic reconstruction was carried out to correct operative defect. While the therapy of the malignant disease is well demonstrated, the results of the reconstructive procedure leave much to be desired in light of present day accepted standards. This motion picture should be of primary interest to those specializing in the radical cure of malignant disease. The photography and titles are fair to good.

The following 16 mm., color, silent, motion pictures were prepared in 1947 and are procurable on loan from Philip Thorek, M.D., 25 East Washington Street, Chicago 2.

Cervical Diverticulectomy (One Stage Operation). 530 feet, (2 reels), showing time twenty-two minutes.

This production shows the surgical technic of a one stage diverticulectomy for a large diverticulum of the cervical esophagus. The anatomy encountered in the approach to the diverticulum is well described and demonstrated, but the dissection of the neck of the diverticulum is not too clearly shown. The use of a Levin tube to locate the opening of the diverticulum and its use as a guide in closing the base to prevent a stricture is a good one. The surgical technic as a whole is commendable. The reproduced roentgenograms are not as clear or informative as they could be.

This motion picture can be recommended for surgeons who wish to review the surgery of cervical diverticulectomy and as a teaching film for medical students and house officers.

The color quality is good. There is evidence that the camera was hand held rather than supported by a tripod. There are sequences where the use of telephoto lens would have improved the film.

Total Colectomy with Ileoproctostomy for Megacolon (Hirschsprung's Disease). 760 feet, (2 reels), showing time twenty-three minutes.

The film depicts the surgical treatment of a spectacular case of congenital idiopathic dilatation of the colon. The anatomy encountered is well demonstrated, and the surgical technic as a whole is good. After division of the terminal ileum, it would have been better to cover the exposed ends of the bowel or close them before proceeding with the resection, in order to minimize contamination. The proximal end is closed with the Kerr-Parker technic after the entire colon has been freed. No attempt is made to reperitonealize the raw surface created by removal of the large bowel. An end to side ileoproctostomy may have been a better procedure than the side to side anastomosis, as complications sometime arise from the blind stump of small intestine.

The caption preceding the postoperative roentgenogram taken at nine weeks should be reedited. The roentgenogram shown does not justify the statement that the small bowel not only resembles large bowel but has assumed the position of the ascending, transverse and descending colon.

The film can be recommended for showing to groups of general surgeons, residents, interns and medical students. The photography is good; however, there is evidence that the camera is hand held rather than supported by a tripod. The field wanders on the screen, and the "panning" on the final scene of the surgical specimen is especially annoying. Color quality is excellent. The titles are clear.

Diagnosis. Danger. 16 mm., black and white, sound, 700 feet, (1 reel), showing time twenty-seven minutes. Prepared by Don C. Hawkins, Assistant Secretary, St. Paul Mercury Indemnity Company, with the cooperation of Malcolm T. MacEachern, Director, American College of Surgeons, Chicago. Produced in 1947 by the Chicago Film Studios, Chicago. Procurable on loan from: St. Paul Fire and Marine Insurance Company, 111 West Fifth Street, St. Paul 2.

This motion picture is designed to eliminate unsafe conditions occurring within the hospital. It shows the danger of inadequate equipment in the various departments of the hospital, such as slipping on wax floors, worn out electric cords, the serving of food on chipped dishes, hot water bottle burns, the dispensing and administration of incorrect drugs and many other similar hazards which may result in harm to the patients, visitors or personnel.

The production, somewhat overdone, is suitable for showing to hospital personnel but is not recommended for lay groups. The photography is good.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Board May Revoke License Only on Substantial Evidence. — The defendant was licensed to practice medicine in Pennsylvania in 1910. He left the state in 1913 but returned to Pennsylvania in 1932 and continued the practice of medicine there until 1944, when the plaintiff, State Board of Education and Licensure, issued a citation against him alleging that he had obtained his medical license through fraud, misrepresentation and deception. The defendant filed a bill in equity to enjoin the board from proceeding with a hearing on such citation on the ground that it was without authority and that it was guilty of laches in permitting thirty-four years to elapse before the issuance of the citation. The court dismissed the bill, and on appeal to the Supreme Court the action of the court below was affirmed. Thereafter the board, following due hearing on the merits, revoked the defendant's license. This order of revocation was affirmed by the court of common pleas of Dauphin County; the defendant then appealed to the Supreme Court of Pennsylvania.

The defendant's license was issued pursuant to the act of May 18, 1893, as amended by the act of April 27, 1909. It is admitted that he received the degree of Doctor of Medicine from the Maryland Medical College on May 3, 1906, and that he successfully passed the appropriate medical examination given in 1910 by the Medical Council of Pennsylvania, the predecessor of the plaintiff board. The sole charge, said the Supreme Court, is that he presented fraudulent credentials to induce the Medical Council in 1910 to issue a license to him.

The plaintiff alleged that the fraud of the defendant in obtaining a license to practice in Pennsylvania consisted of (1) submitting to the Medical Council of Pennsylvania in support of his application for medical licensure a certificate of medical education which was not signed by the then Dean of the Maryland Medical College and (2) submitting to the Medical Council of Pennsylvania a sworn application for licensure to practice medicine which contained false statements that he had studied medicine four years and that he attended the University of Maryland during the year 1902-1903.

The defendant first argued that because thirty-four years elapsed between the granting of his license and the issuance of the citation in 1944, the doctrine of laches should prohibit the board from revoking his license. With this contention, said the Supreme Court, we cannot agree. Laches cannot be imputed by the mere passage of time, but must be determined from all the circumstances of the case. The Supreme Court of the United States has said: "But length of time necessarily obscures all human evidence; and as it thus removes from the parties all the immediate means to verify the nature of the original transactions, it operates by way of presumption, in favor of innocence, and against imputation of fraud." This rule, continued the Pennsylvania Supreme Court, is of particular significance in this case. One of the board's own witnesses testified that most of the academic records of the Maryland Medical College had been destroyed by fire prior to 1944. In addition, a letter, dated March 15, 1911, from W. S. Smith, M.D., the then Dean of the Maryland Medical College to Miss Mary M. McReynolds, clerk of the Medical Council of Pennsylvania, establishes that within eight months of the defendant's licensure an investigation was made of his credentials. As no action was then undertaken to revoke his medical license, the only reasonable deduction possible is that the credentials were found to be authentic and satisfactory at that time. Thirty-four years later we cannot reasonably expect verification of them with the same degree of certainty that was present then.

The defendant then contended that the evidence on which the board acted was legally insufficient. The Administrative Agency Law of Pennsylvania provides, among other things, that on appeal to the courts an agency's adjudication must be affirmed, unless "any finding of fact made by the agency and necessary to support its adjudication is not supported by substantial evidence." Substantial evidence, said the Supreme Court, is more than a mere scintilla; it means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion; it must do more than create a suspicion of the existence of the fact to be established.

With this principle in mind, the Supreme Court continued, it is necessary to consider the evidence on which the plaintiff predicated its finding that the defendant committed fraud in submitting a "Certificate of Medical Education" which purported to be signed by the Dean of the Maryland Medical College. The certificate received by the Medical Council is dated June 2, 1910, and at the end thereof is signed in ink: "Maryland Medical College, C. B. Smith, Dean." The plaintiff's evidence tended to prove that one W. S. Smith was actually Dean in 1910. Even assuming that W. S. Smith was Dean, said the Supreme Court, the alleged fraud of the defendant was not established. If the signature "C. B. Smith, Dean" was not the name or the signature of the then Dean, there still remains the vital question, by whom and at whose direction was the incorrect signature affixed to the certificate? There was no evidence that the questioned document ever passed through the defendant's hands, but it was admitted by the plaintiff's witnesses that it could have been mailed directly from the Maryland Medical College at Baltimore to the Medical Council at Harrisburg. At most the evidence presented by the plaintiff might arouse suspicion, but, concluded the court, it is clearly insufficient to prove the allegation of fraud.

The next question considered was whether or not there was substantial evidence that the defendant committed fraud in submitting a sworn application for licensure which stated that he had studied medicine for four years and that he had attended the University of Maryland during the academic year 1902-1903. The printed catalogue of the School of Medicine of the University of Maryland for the season 1903-1904 does not mention the defendant as a member of the class of 1902-1903; that for the session 1904-1905 lists him as a member of the first year class in 1903-1904, and that for the year 1905-1906 lists him as a member of the second year class in 1904-1905. These catalogues, said the Supreme Court, were not offered in evidence, and no witness was presented to testify to their accuracy. They have little probative value, inasmuch as they were not official school records and the listing of the various students attending the sessions could be incorrect, because of, among other things, the carelessness of those preparing the catalogues for publication or errors of the printer. The plaintiff also offered two matriculation cards from the University of Maryland bearing the defendant's name. The one, dated Sept. 14, 1903, had several unfilled blanks, one of which followed the question "What Medical Courses have you taken and at what college?" The other card, dated Oct. 3, 1904, had, in answer to the same question: "One year University of Md." When the defendant received his degree of Doctor of Medicine from the Maryland Medical College in 1906, that school required a four year medical course for graduation and, therefore, it is a reasonable inference that when he was admitted to senior status in 1905 he established to the satisfaction of the school

authorities the record of his first three years in other medical schools. We are convinced, said the Supreme Court, that this negative evidence is no proof that the defendant did not attend the University for the year 1902-1903, as he claims. At most, such evidence is but a mere scintilla, and is insufficient to overcome the presumption in favor of the defendant's innocence.

We have most carefully examined the entire record, said the Supreme Court, and have concluded that the weak and inconclusive evidence adduced by the plaintiff does not rebut the presumption of innocence and that the alleged fraud has not been proved. On the evidence presented, it would be grossly unjust to revoke the defendant's license to practice his chosen profession and thereby deprive him of his means of livelihood.

Accordingly the order of revocation entered by the State Board of Medical Education and Licensure was reversed and the board was directed to reinstate the license of the defendant to practice medicine in Pennsylvania.—*Pennsylvania State Board of Medical Education and Licensure v. Schireson, 61 A. (2d) 343 (Pa., 1948).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I & II.* Various Centers, Feb., June and Sept. 1949. *Part II.* April, 1949. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2, Pa.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC.: *Written.* July 15. Various locations. Final date for filing application is April 15. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Avenue, New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* San Francisco, Feb. 8-10, 1949. New York City, March 23-25. Final date for filing application is Jan. 2. Philadelphia, June 1-3. Final date for filing application is Jan. 2. *Written.* Oct. 17, 1949. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Final date for filing application is Jan. 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Jan. 14. *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston, Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsurgh 6.

AMERICAN BOARD OF ORTHOPEDIC SURGERY: *Part I.* Various Centers, April and May. Final date for filing application is Dec. 31. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Boston, April. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

AMERICAN BOARD OF PEDIATRICS: St. Louis, Feb. 18-20. Baltimore, April 22-24. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE: Atlantic City, June 4-5. Final date for filing application is March 15. Sec., Dr. R. L. Bennett, Georgia Warm Springs Foundation, Warm Springs, Ga.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Oral.* May. Final date for filing application is Feb. 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, March 1949. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30, 1949. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ALASKA:* Juneau, March 1. Sec.-Treas., Dr. W. M. Whitehead, Box 140, Juneau.

ARKANSAS:* Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana.

COLORADO:* Denver, Jan. 4-7. Final date for filing application is Dec. 18. Sec.-Treas., Dr. W. W. King, 831 Republic Bldg., Denver 2.

CONNECTICUT:* Hartford, March 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: *Examination.* Dover, Jan. 11-13. *Endorsement.* Jan. 20. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA:* *Reciprocity.* Washington, Dec. 13. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg. East, Washington.

GEORGIA: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif.

HAWAII: *Examination.* Honolulu, Jan. 10-13. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.

IDAHO: Boise, Jan. 10-12. Dir., Bureau of Occupational Licenses, Miss Estella S. Mulliner, State House, Boise.

ILLINOIS: Chicago, Jan. 11-13. Superintendent of Registration, Mr. Fred W. Ruegg, State House, Springfield.

INDIANA: *Examination.* Indianapolis, June. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

KANSAS: Topeka, Dec. 15-16. Sec., Board of Medical Registration & Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: *Examination.* Louisville, Dec. 13-15. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

LOUISIANA: *Examination.* New Orleans, Dec. Sec.-Treas., Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans 12. *Homeopathic Examination.* Baton Rouge, subject to call. Sec., Dr. F. H. Hardenstein, 715 Pere Marquette Bldg., New Orleans.

MAINE: Portland, March 8-9. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

MARYLAND: *Examination.* Baltimore, Dec. 14-17. *Endorsement.* At the discretion of the Board. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore.

MASSACHUSETTS: *Examination.* Boston, March 8-11. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MINNESOTA:* Minneapolis, Jan. 18-20. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Building, St. Paul.

MONTANA: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

NEBRASKA:* *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEVADA: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

NEW HAMPSHIRE: Concord, March 10. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW MEXICO: Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

NEW YORK: *Examination.* Various Centers, Feb. 1-4. Sec., Dr. J. L. Lochner, Jr., 23 S. Pearl St., Education Bldg., Albany.

NORTH CAROLINA: *Endorsement.* Raleigh, Jan. 17. Sec., Dr. Ivan M. Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: *Examination.* Grand Forks, Jan. 4-7. Act. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination* Columbus, Dec. 13-15. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OREGON:* *Examination.* Jan. 5-7. Final date for filing application is Dec. 22, 1948. *Endorsement.* Jan. 21-22. Final date for filing application is Jan. 3. Exec. Sec., Mr. Howard I. Bobbitt, 608 Failing Bldg., Portland.

PENNSYLVANIA: *Examination.* Philadelphia, Jan., 1949. Act. Sec., Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: *Examination.* Santurce, March 1. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND:* *Examination.* Providence, Jan. 6-7. Chief, Mr. Thomas B. Casey, 366 State Office Building, Providence.

SOUTH DAKOTA:* Pierre, Jan. 18-19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TENNESSEE:* *Examination.* Memphis, Dec. 22-23. Sec., Dr. H. W. Qualls, 1635 Exchange Building, Memphis 3.

TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: *Examination.* Burlington, Feb. Sec., Dr. F. J. Lawliss, Richford.

WASHINGTON:* Seattle, Jan. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

WEST VIRGINIA: Charleston, Jan. 3-5. Sec., Public Health Council, Dr. N. H. Dyer, Capitol Bldg., Charleston 5.

WISCONSIN:* Madison, Jan. 11-13, 1949. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls, Wis.

WYOMING: *Examination.* Cheyenne, Feb. 7. Sec., Dr. Franklin D. Yoder, Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: *Examination.* Tucson, Dec. 21. Sec., Mr. Francis A. Roy, University of Arizona, Tucson.

CONNECTICUT: New Haven, Feb. 12. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.

FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: *Examination.* Des Moines, Jan. 11. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Ann Arbor & Detroit, Jan. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

MINNESOTA: *Examination.* Jan. 4-5, April, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

OKLAHOMA: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, Dec. Sec., Basic Science Examining Committee, Dr. C. D. Byrne, Univ. of Oregon, Eugene.

RHODE ISLAND: *Examination.* Providence, Feb. 9. Chief, Mr. Thomas B. Casey, 366 State Office Building, Providence.

TENNESSEE: *Examination.* Memphis, Dec. 30-31. Sec., Dr. O. W. Hyman, 874 Union Avenue, Memphis 3.

WASHINGTON: Stattle, Jan. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

48:1-132 (July) 1948. **Partial Index**

Comparative Study of Tellurite Plating Media for Corynebacterium Diphtheriae. M. Frobisher Jr., Elizabeth I. Parsons, Elsie Lankford Yeates and Kathleen L. Gay.—p. 1.
Infection and Immunization of Laboratory Animals with Rickettsia Prowazekii of Reduced Pathogenicity, Strain E. F. P. Gallardo and J. P. Fox.—p. 6.
Trombiculid Mites Affecting Man. D. W. Jenkins.—p. 22.
Titration of Mumps Neutralizing Antibody in Chick Embryos. G. R. Leymaster and T. G. Ward.—p. 45.
Susceptibility of Mongoloids to Infection. M. Siegel.—p. 53.
In Vitro Action of Immune Serums on Cercariae of Schistosoma Mansoni. B. Papirmeister and F. B. Bang.—p. 74.
Immunization of Young Mice with Unmodified M M Mouse Encephalomyelitis Virus Under Passive Protection from Immune Mothers. F. J. Curley and J. E. Gordon.—p. 81.
Poliomyelitis in Uninoculated Rhesus Monkey, and in Orally Inoculated Monkeys, Receiving Desoxypyridoxine. D. Bodian.—p. 87.
Comparative Susceptibility of Cynomolgus and Other Monkey Species to Poliomyelitis Virus by Intracerebral and Oral Routes. J. L. Melnick and H. von Magnus.—p. 107.
*Tonsillectomy in Experimental Poliomyelitis. H. von Magnus and J. L. Melnick.—p. 113.
Factors Affecting Survival of Treponema Pallidum in Vitro. R. A. Nelson Jr.—p. 120.

Tonsillectomy in Experimental Poliomyelitis.—Von Magnus and Melnick demonstrated that after tonsillectomy cynomolgus monkeys are more susceptible to infection after being fed poliomyelitis virus than rhesus monkeys and African green monkeys. The incidence of poliomyelitis in tonsillectomized cynomolgus monkeys increased to 93 per cent (13 positive of 14 fed virus) from a control level of 13 per cent (2 of 15) for the nontonsillectomized cynomolgus groups. The incidence in the other tonsillectomized species of 8 per cent was no different from the incidence of 8 per cent in nontonsillectomized controls of these species. Two of 3 cynomolgus monkeys which contracted poliomyelitis were found to excrete virus with their stools the day before paralysis. Five nonparalyzed monkeys did not excrete virus in the four week observation period. Of 14 tonsillectomized monkeys which subsequently contracted poliomyelitis, only 2 had the bulbar form of the disease. Two other monkeys exhibited facial paralysis together with paralysis of the limbs.

American Journal of Psychiatry, New York

104:513-592 (March) 1948. **Partial Index**

Limitations of Psychiatry. A. Gregg.—p. 513.
The Myth of Psychopathic Personality. B. Karpman.—p. 523.
Neuropsychiatrist and Civil Law. H. L. Kozol.—p. 535.
New Facts on Prognosis in Mental Disease. R. H. Israel and N. A. Johnson.—p. 540.
What Happens to First Admissions to State Hospitals. H. Meyer and G. H. Preston.—p. 546.
Psychiatric Treatment of Veteran Outpatient. J. Hughes and B. E. McLaughlin.—p. 549.
Problems of Social Psychiatry in Palestine. K. Blumenthal.—p. 563.
Outpatient Treatment of Alcoholics. L. E. Wexberg.—p. 569.
Indications for Shock Treatment in Psychiatry. T. Braatoy.—p. 573.
*Acute Alcoholism in Mental Patients Treated with Insulin. S. J. Tillim.—p. 576.

Alcoholism in Mental Patients Treated with Insulin.—Tillim says that when alcoholic addicts are admitted to hospitals they either are intoxicated or present the after-effects thereof, involving psychic, nervous and nutritional disorders. Patients may exhibit psychic clouding to the point of delirium with delusions and hallucinations, nervousness displayed in tremor, ataxia and restlessness, and nutritional defects manifested by dehydration, refusal or inability to accept nourishment, and signs of avitaminosis. Therapeutic indications are for prompt induction of rest and sleep and measures to correct the nutritional deficiency. Insulin-induced hypoglycemic reactions are preeminently effective in providing the rest and sleep and conditioning the patient for the acceptance of nourishment without recourse to force or parenteral administration. Favorable results from the use of insulin in the medical treatment of alcoholism have been reported by others. The author presents 7 cases which provide additional evidence on the efficacy of insulin therapy. He concludes that this method is the quickest for restoration of normal mentation and physical health and more specific in purpose than any other method presently in vogue.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

60:1-152 (July) 1948

Micro-Arteriography. A. E. Barclay.—p. 1.
Roentgen Diagnosis of Diffuse Leukemic Infiltration of Kidneys in Children. J. F. Gowdey and E. B. D. Neuhauser.—p. 13.
*Laryngeal Chondronecrosis Following Roentgen Therapy. W. A. Goodrich and M. Lenz.—p. 22.
Roentgen Treatment for Extensive Epithelioma of Larynx: Results in 139 Cases. A. U. Desjardins, F. A. Figi and L. M. Vaughan.—p. 29.
Roentgen Therapy of Malignant Tumors of Testis. E. T. Leddy.—p. 39.
*Preliminary Report on Clinical Use of Radioactive Iodine (I^{131}). E. R. Miller, M. H. Soley and M. E. Dailey.—p. 45.
Roentgenographic Studies of Methylmethacrylate (Lucite) Plombage in Extrapleural Pneumolysis. H. D. Kerman.—p. 51.
Primary Cancer of Lung with Special Reference to Apical Lung Tumors. J. J. Stein.—p. 58.
Esophageal Hiatus Hernia with Inversion of Stomach. J. H. Marks.—p. 63.
Pouch Formation Following Gastroenterostomy. E. Landy.—p. 69.
Roentgen Signs of Gastritis. L. Walk.—p. 77.
Gastric Retention and Gastric Ulcer. F. Huber and C. G. Huntington.—p. 80.
Gallstone Ileus Associated with Diverticulitis of Colon: Case Report. I. I. Lomhoff and J. Dubowy.—p. 86.
Suggested Outline for Training of Radiologists at Qualified United States Naval Hospitals. W. G. Scott.—p. 90.
Tribute to Wilhelm Conrad Röntgen. G. E. Gomez.—p. 96.

Laryngeal Chondronecrosis Following Roentgen Therapy.—Goodrich and Lenz say that chondronecrosis of the larynx after roentgen therapy for laryngeal cancer is precipitated by infection of cartilage. Laryngeal chondronecrosis following roentgen therapy for cancer of the larynx occurred in 28 of 205 patients treated at the Presbyterian Hospital, New York, between 1932 and 1946. Eight of the 28 have been found to be free of cancer. In most of the others, it was not possible to determine whether cancer persisted microscopically or whether one was dealing only with radionecrosis. In 23 of the 28 chondronecrosis appeared within six months, 2 within one year and 3 more than one year after treatment; the latter 3 recovered, 1 after sloughing, 1 after local removal of the necrotic portion of the epiglottis and 1 after laryngectomy. Laryngeal chondronecrosis occurred chiefly in advanced and extensive carcinomas and exceptionally in those which were early and small. Chondronecrosis involved the epiglottis more frequently than other laryngeal cartilages. When developing in its free portion prognosis was good, as nearly every cured case of epiglottic carcinoma showed a deformity of the healed radionecrotic area. Prognosis was poor when necrosis extended to the base of the epiglottis or the preepiglottic space. The outlook was also poor when the arytenoids or thyroid cartilages were involved. Laryngofissure or partial laryngectomy either before or after roentgen therapy seemed to favor the development of chondronecrosis in the remaining cartilage. The exception to this was the removal of the necrotic free portion of the epiglottis. Total removal of cartilage by laryngectomy avoided this complication. The use of penicillin and sulfonamide drugs seemed to help abort the threat of chondronecrosis, but was less effective when chondronecrosis had fully developed. Laryngectomy should be considered in selected cases with early or impending chondronecrosis.

Use of Radioactive Iodine (I^{131}).—According to Miller and his co-workers radioiodine is capable of spontaneously disintegrating and emitting radiation, either beta particles or beta particles and gamma rays. It is useful in therapy since this radiation may destroy the cells which absorb the iodine, and useful in tracer work since it allows one to follow the fate and

metabolism of the iodine by observing the radiations emitted from it. There is no difference in the metabolism of radioactive and nonradioactive iodine. However, there are eleven different radioactive isotopes of iodine which differ enough in radiation action so that they might well be considered as different substances. This is true because the different isotopes have great differences in their half-lives and their radiations have different energies. This is well reflected in the case of I^{130} and I^{131}. The half-life of I^{130} is 12.6 hours and that of I^{131} is eight days. Therefore, I^{130} will act with great effect over a short time and I^{131} will act with less effect per unit time, but will act over a long time. This will make a great difference—as much as fifty times—in the dose administered to accomplish the same end. Radioiodine is useful in the treatment of Graves' disease in which the thyroid is not saturated with iodine. It is not useful in the therapy of Graves' disease in which the thyroid is saturated with iodine, nor is it useful in the treatment of thyroiditis, nontoxic goiter or involutionary nodules in the thyroid. It is occasionally useful in therapy of carcinoma. The studies described here were made in order to determine the uptake of radioiodine in microcuries in the human thyroid in situ after oral administration of I^{131}. From this an estimate of the energy dissipated within the thyroid can be made. The iodine solution is put into about 50 cc. of water, and the patient drinks the entire solution. The iodine is administered in the evening and measurements are made on the patients during the following two days during the daytime. Follow-up measurements are made at one and two week intervals. The patients are reevaluated clinically and with laboratory tests at the end of a month to determine their status and possible need for more treatment. The measurements are made with the Geiger counter. The authors stress the need of caution in the handling of radioactive materials, since all of them are dangerous.

American Journal of Surgery, New York

76:121-232 (Aug.) 1948

Technic for Resection of Right Middle and Right Lower Lobes of Lung. R. C. Scanneli.—p. 124.
Four Hundred Consecutive Cases of Jaundice. C. A. Bachhuber and A. E. Gilbert.—p. 144.
Reversal of Circulation of Brain: Partial Reversal in Four Humans Treated for Paralysis and Mental Conditions. G. H. Sciaroni.—p. 150.
Development of Ultraviolet Blood Irradiation. E. K. Knott.—p. 165.
Gastric Diverticula. M. A. Casberg and W. P. Martin.—p. 172.
Hemorrhagic Shock. C. M. Swindler.—p. 182.
Meckel's Diverticulum. A. V. Migliaccio and C. Begg.—p. 188.
Percutaneous Fixation of Hip Fractures. C. B. Strauch.—p. 197.
Transitory Hypoproteinemia in Acute Severe Fractures. B. J. Ficarra.—p. 201.

Am. J. Syphilis, Gonorrhea and Ven. Dis. St. Louis

32:301-408 (July) 1948

*Laboratory Diagnosis of Granuloma Inguinale and Studies on Cultivation of Donovan Body. R. B. Dienst.—p. 301.
Radioactive Tracer Technics and Their Possible Application to Studies in Syphilis. P. D. Rosahn.—p. 307.
Therapeutic Efficacy of Sodium Penicillin and of Penicillins F and X in Experimental Rabbit Syphilis. P. D. Rosahn, B. Gueft and Catharine L. Rowe.—p. 317.
Experimental Mouse Syphilis I. Organ Distribution of Infectious Agent. P. D. Rosahn, B. Gueft and Catharine L. Rowe.—p. 327.
Plasma and Cerebrospinal Fluid Iron Concentration Studies in Syphilitic and Nonsyphilitic Patients. R. L. Greif.—p. 337.
Extragenital Chancres: Survey of 219 Cases. H. A. Tucker and J. L. Mulherin.—p. 345.
False Positive Serologic Tests for Syphilis Following Smallpox Vaccination. T. Rosenthal and D. Widelock.—p. 365.
Kahn "Optimal Zone Reaction" in Seronegative Cases of Neurosyphilis. D. Boersma and Phebe G. Williams.—p. 370.
Cardiolipin Slide Test in Serodiagnosis of Syphilis. S. J. Klein and G. M. Leiby.—p. 377.
Further Observations of Electrocardiographic Changes in Early Syphilis. H. P. Steiger and J. Edeiken.—p. 391.
Treatment of Neurosyphilis with Penicillin Alone. B. Dattner.—p. 399.

Diagnosis of Granuloma Inguinale.—According to Dienst and his collaborators the simplest and most reliable laboratory procedure for diagnosis of granuloma inguinale is to determine the presence of intramonocytic Donovan bodies in the tissue smear stained by Wright's stain. After directing attention to Anderson's report in 1943 on the cultivation of Donovan bodies in the yolk sac of the chick embryo, Dienst says that he and his collaborators have been successful in growing the organisms in fresh unincubated yolk medium. The Donovan bodies multiplied in yolk medium prepared from unfertile as well as from fertile eggs. The ability of the plain yolk medium to support the growth of Donovan bodies of a freshly isolated strain depended on a physical property of the medium. The author describes the preparation of the medium to cultivate Donovan bodies. Addition of a small percentage of agar to fresh yolk medium furnishes a factor essential for cultivation in vitro of recently isolated strains of Donovan bodies.

Annals of Otol., Rhin. and Laryngology, St. Louis

57:287-576 (June) 1948

Aliphatic Versus Aromatic Amines as Vasoconstrictors. K. K. Chen.—p. 287.
Neuron Arcs of Clinical Significance in Laryngology. A. C. Furstenberg and Elizabeth Crosby.—p. 298.
Discussion of Present Methods for Testing Auditory Function. M. F. Jones.—p. 311.
Volume of Bronchial Tree at Various Levels and Its Possible Physiologic Significance. A. C. Hilding and D. Hilding.—p. 324.
Problems of Diagnosis in Obstruction of Eustachian Tube. F. T. Hill.—p. 343.
Tonsillectomy in United States. L. R. Boies.—p. 352.
Etiology, Treatment and Prevention of Chronic Sinus Infection. S. J. Crowe and J. E. Lett.—p. 364.
Moniliasis of Larynx: Report of 2 Cases. C. C. Cody.—p. 371.
Cancer of Larynx: Statistical Study. L. A. Schall and J. J. Ayash.—p. 377.
Skull Roentgenograms of Interest to Otolaryngologist. F. H. McGovern, G. S. FitzHugh and G. Cooper Jr.—p. 387.
*Indications for and End Results of Fenestration Surgery. A. L. Juers and G. E. Shambaugh.—p. 397.
*Rhinoscleroma Apparently Cured with Streptomycin. G. B. New, L. A. Weed, D. R. Nichols and K. D. Devine.—p. 412.
Effects of Negative Air Pressure in Middle Ear. E. G. Wever, M. Lawrence and K. R. Smith.—p. 418.
Carcinoma of Trachea. C. W. Engler.—p. 429.
Testing Speech-Hearing and Efficiency of Hearing Aids. D. Macfarlan.—p. 444.
*Lermoyez's Syndrome—Allergic Disease. W. W. Eagle.—p. 453.
Incidence of Otitis Media and Mastoiditis in Scarlet Fever. M. J. Fox and Veronica L. Minning.—p. 489.
Hearing Aids: Evaluation and Practicability of Hearing Aids, with Review of Recent Literature. G. Berry.—p. 500.

Results of Fenestration Surgery.—Juers and Shambaugh say that after a diagnosis of clinical otosclerosis has been made and routine hearing tests completed, they classify the case as to suitability into one of three groups. Cases are classified as belonging to a class A when there is satisfactory cochlear function as determined by bone conduction audiometry with no level for the 512, 1,024 or 2,048 frequencies below 30 decibels. The Rinne tests with the 256, 512 and 1,024 frequency forks are negative. The Schwabach tests for these forks show a normal or slightly prolonged time as compared to a normal ear. The air conduction curve may be fairly flat or have a slightly better threshold for the high than the low tones. In class B patients the bone conduction audiometric test will show the threshold for one level — usually 2,048 — to be below 30 decibels. The fork tests will be similar to those in class A except that with the 1,024 frequency fork air conduction may be equal to bone conduction and for 2,048 the Schwabach test will usually show a slightly greater degree of impairment. In class C cases the audiometric bone conduction threshold is below the 30 decibel level usually for two of the three speech frequencies. For the 1,024 frequency fork the Rinne reaction is as a rule positive. The Schwabach tests for the 1,024 and 2,048 frequencies are both definitely shortened. The air conduction curve almost always shows more loss for the high than for the low tones. The authors found that in class A patients a fenestration can produce in approximately 75 to 80 per cent of the cases what may be considered a stable level of hearing which is equal to or better than that obtainable by a hearing aid. If there is some associated nerve degeneration and the case comes within class B, the patient has a 40 to 60 per cent chance of attaining a good result, and a class C patient would have a 10 to 20 per cent chance. Class C patients and some class B patients who wear a hearing aid well should be advised not to consider surgical treatment. A two year follow-up indicates that the incidence of complete physiologic closure is 1.4 per cent in patients who at the time of their best hearing improvement had attained a level of 35 decibels or better.

Streptomycin in Rhinoscleroma.—New and his associates report the case of a woman, aged 32, who had been born in Siberia and reared in the Far East. Her chief complaint was bilateral nasal obstruction for fifteen years with hoarseness, a sense of constriction in her throat and slight difficulty in swallowing for one year. A diagnosis of rhinoscleroma had been made in 1938 in Shanghai, China. Treatment with autogenous vaccine apparently arrested the disease process except for a short period in 1941, when there was reactivation. On examination in 1946, both nostrils were found to be almost completely obstructed with granulomatous tissue. There was scarring of the pharynx, with a small opening into the nasopharynx. The posterior surface of the epiglottis and the left side of the larynx were involved with granulomatous masses. Tomographs of the larynx showed almost complete obstruction of the airway at the level of the glottis. Culture of the granulomatous material showed large numbers of Klebsiella. Since organisms of the Klebsiella group had been found sensitive to streptomycin, treatment with streptomycin was begun on Sept. 27, 1946. The patient received 250 mg. of streptomycin intramuscularly every three hours. After the first week the antibiotic was discontinued because of articular pains, a cutaneous rash, malaise and fever. After twelve days' rest it was possible to continue the administration of streptomycin for forty-three consecutive days, or until a total of 97.25 Gm. had been given. After 38 Gm. of streptomycin had been administered, the patient stated that there was only one third as much mucopurulent material and crusting in her nose as there had been before treatment. After 53 Gm. had been used, tomographs of the larynx showed a good airway. The results of culture of tissue removed from the nostrils were negative for Klebsiella. Approximately eight months after the cessation of treatment with streptomycin, examination of the larynx showed no evidence of the disease other than the residual scarring, and the results of culture of tissue removed from the larynx were negative for Klebsiella. This seems to be the first case of rhinoscleroma cured with streptomycin.

Lermoyez's Syndrome — An Allergic Disease. — Eagle directs attention to the fact that in Ménière's and Lermoyez's syndromes the same symptoms are encountered, but their appearance is in reverse order. In Ménière's syndrome the tinnitus and deafness follow a vertiginous attack and remain stationary or become progressively worse, while in Lermoyez's syndrome the tinnitus and deafness precede the vertigo and diminish or completely subside immediately after the vertigo becomes established. Lermoyez attributed his syndrome to a vasospasm of the internal auditory artery without any suggestion of an allergic origin. The author observed 11 patients who demonstrated the typical symptoms of Lermoyez's syndrome, but in each instance an allergic disturbance was found, generally that of urticaria (usually the giant type) sometime prior to the onset of symptoms. The syndrome is believed to be allergic in origin and urticaria probably the necessary etiologic factor. The author presents the histories of 3 of 11 patients with Lermoyez's syndrome observed by him. He emphasizes that in view of the excellent prognosis of Lermoyez's syndrome, compared to Ménière's syndrome, it is essential that Lermoyez's syndrome be recognized when it exists.

Bulletin New York Academy of Medicine, New York

24:481-546 (Aug.) 1948

Modern Treatment of Pulmonary Suppuration. W. D. Andrus.—p. 481.
Medical Aspects of Thrombophlebitis. E. V. Allen.—p. 491.
*Some Preliminary Observations on Clinical Course of Myasthenia Gravis Before and After Thymectomy. A. M. Harvey.—p. 505.
Influence of Disease on History. G. T. Pack and Frances R. Grant.—p. 523.

Myasthenia Gravis.—Harvey says that his analysis of 125 patients with myasthenia gravis suggests that if significant clinical remissions appear they tend to occur early in the course of the disease. Significant remissions which last for a long period of time appear to be unusual in patients who have received moderate or large amounts of neostigmine for more than six months. Sufficient data are not yet available to evaluate with finality the effect of thymectomy on the course of myasthenia gravis. Preliminary studies indicate that the beneficial results are greater than one might expect from spontaneous remission. This conclusion is further supported by the following: that most of the patients operated on had severe myasthenia, that there had been no tendency for the development of remissions preoperatively and that large doses of neostigmine had been administered in the preoperative period and had to be continued for many weeks after operation. It is not known what role the thymus plays in the pathogenesis of myasthenia gravis, but the author thinks that long term study of the effect of thymectomy early in the course of myasthenia gravis before prolonged therapy with neostigmine may reveal information of importance concerning the physiologic function of the thymus. The magnitude of this type of clinical experiment is evident when one realizes that spontaneous remission may occasionally last for fifteen years.

Florida Medical Association Journal, Jacksonville

35:65-124 (Aug.) 1948

Ophthalmoscopic Observations in Hypertension and Their Import. S. Richardson.—p. 79.
Dicumarol in Acute Myocardial Infaction: Its Use in Small Controlled Series. H. Fuller.—p. 85.
Health Center Buildings. H. E. Handley.—p. 88.
Liver Function Tests. J. P. Rowell.—p. 92.

Gastroenterology, Baltimore

11:1-156 (July) 1948

*Chronic Relapsing Pancreatitis: Analysis of 27 Cases Associated with Disease of Biliary Tract. E. E. Gambill, M. W. Comfort and A. H. Baggenstoss.—p. 1.
*Treatment of Non-Specific Ulcerative Colitis by Autogenous Vaccine; Correlated Bacteriological and Immunological Studies. A. Maratka and V. Wagner.—p. 34.
Hypoproteinemia and Edema in Course of Tropical Sprue. M. Stefanini.—p. 50.
Improved Liver Biopsy Needle. W. L. Voegtlin.—p. 56.
Diverticula of Stomach: Report of 26 New Cases. S. P. Bralow and M. A. Spellberg.—p. 59.
Response of Human Intestinal Motility to Tetraethyl Ammonium Chloride. E. L. Posey Jr., H. S. Brown and J. A. Bargen.—p. 83.
Incidence of Cholelithiasis in Negro as Compared with White. W. H. Windley.—p. 90.
Needle Biopsy of Liver: II. Experiences with Malignant Neoplasm. S. A. Safdi, E. A. Gall, C. W. Kumpe and L. Schiff.—p. 93.
Absorption, Destruction, and Excretion of Orally Administered Thiamin by Human Subjects. T. E. Friedemann, T. C. Kmieciak, Patricia K. Keegan and Bernice Blum Sheft.—p. 100.
Study on Occurrence of Pneumoperitoneum After Gastroscopy and Observance of Interstital Emphysema of Stomach. J. Myhre and J. A. Wilson.—p. 115.

Chronic Relapsing Pancreatitis. — Gambill and his coworkers report on 27 patients, 19 men and 8 women, between the ages of 10 and 75 years, with chronic relapsing pancreatitis associated with disease of the biliary tract. Painful seizure was the most typical, violent and arresting manifestation of the disease. In 3 of the 27 cases pain was relatively mild, moderate in 1 case and severe in 23 cases. Pain occurred as infrequently as once every four years and as often as once daily or weekly. In 14 patients there was a progressive increase in the frequency of attacks. Painful seizures lasted for one hour to twenty-one days; the duration of pain for days, not for hours, is a characteristic that might point to pancreatitis. Nausea, vomiting and jaundice were associated with the painful seizures of pancreatitis. Most of the patients exhibited evidence of loss of weight. In 26 of the 27 cases one or more surgical procedures were carried out on the biliary tract. Cholecystectomy or cholecystectomy plus choledochostomy was followed by remission of painful attacks of one to eight years' duration in about one third of the cases and of four or more years in about one fifth of the cases, a percentage high enough to justify this approach. The problems of diagnosis of chronic relapsing pancreatitis are increased by the presence of associated disease of the biliary tract; awareness of the possibility of pancreatitis, familiarity with its clinical features, roentgenologic observations and tests of pancreatic function should lead to a correct diagnosis in a high percentage of cases. Comparison of the 27 cases of this series with 29 cases of chronic relapsing pancreatitis not associated with disease of the biliary tract showed that the anatomic and histopathologic features of the disease in the pancreas were essentially the same in the two series. Interstitial fibrosis and residual necrosis were rather constant observations. Cyst and

abscess formation and deposition of calcium occurred in both. Alcohol becomes an etiologic suspect in both series. Treatment of chronic relapsing pancreatitis associated or unassociated with disease of the biliary tract is the same, except that there is need for surgical removal of the diseased gallbladder. Certain pathologic observations suggested that in chronic relapsing pancreatitis, disease of the biliary tract may be secondary to the disease of the pancreas.

Treatment of Nonspecific Ulcerative Colitis.—Maratka and Wagner treated 35 patients with nonspecific ulcerative colitis with autovaccine. Injections were given every three to five days in such a way that 0.1 cc. was injected intracutaneously and the rest subcutaneously. The dosage was determined and the injections spaced so as to avoid systemic focal and local reactions. Careful removal of the material from all the infectious foci and also directly from the lesion, serologic and immunologic examination of the pathologic nature of the cultured micro-organisms by autoagglutination and by skin tests, and preparation of the vaccine according to these findings, are of the greatest importance. Results showed that autovaccination is a valuable supportive measure in cases of mild and moderately severe ulcerative colitis in the stage of subchronic suppuration and of persisting ulcers when the general evolution is stationary or regressive. The treatment must not be started either during a violent attack or when the general condition is poor. In suitable cases autovaccine contributes to shortening of attacks and exerts an especially favorable influence on the character of the interval between them. It frequently helps to remove manifestations of persisting infection and thus changes the type of course from the chronic to the periodic. This can give the semblance of a clinical "cure." It may also be capable of preventing the transition of the disease process from a mild to a severe form. Autovaccination probably specifically combats or prevents secondary infection and sensitization.

Journal of Clinical Investigation, Boston

27:389-564 (July) 1948. **Partial Index**

Mineral Balance During Brief Starvation: Effect on Serum Electrolytes and Mineral Balance of Maintaining Intake of Certain Mineral Constituents. L. E. Duncan Jr., R. J. Meyer and J. E. Howard.—p. 389.
Relation of Albumin to Precipitable Iodine of Serum. J. P. Peters and Evelyn B. Man.—p. 397.
Nitrogen Balance Studies on Kempner Rice Diet. W. B. Schwarts and J. K. Merlis.—p. 406.
Effects of Rate of Administration of Amino Acid Preparations on Urinary Wastage of Amino Acid Nitrogen in Man. C. J. Smyth, S. Levey and A. G. Lasichak.—p. 412.
*Comparative Effects of Continuous and Intermittent Penicillin Therapy on Formation of Antistreptolysin in Hemolytic Streptococcal Pharyngitis. E. D. Kilbourne and J. P. Loge.—p. 418.
Quantitative Antistreptokinase Studies in Patients Infected with Group A Hemolytic Streptococci: Comparison with Serum Antistreptolysin and Gamma Globulin Levels with Special Reference to Occurrence of Rheumatic Fever. H. C. Anderson, H. G. Kunkel and M. McCarty.—p. 425.
Effect of Heparin and Dicumarol Anticoagulant Therapy on Erythrocyte Sedimentation Rate. S. W. Cosgriff.—p. 435.
Sensitivity of Skeletal Muscle to Intra-Arterial Acetylcholine in Normal and Myasthenic Man. G. H. Acheson, J. L. Langohr and J. B. Stanbury.—p. 439.
Response of Citric Acid Levels to Oral Administration of Glucose. S. Natelson, J. B. Pincus and J. K. Lugovoy.—p. 446.
Effects of Various Amino Acids on Peripheral Blood Flow and Skin Temperature. M. B. Macht.—p. 454.
Antihyaluronidase Studies of Serums from Patients with Rheumatic Fever, Streptococcal Infections, and Miscellaneous Non-Streptococcal Diseases. R. W. Quinn.—p. 471.
Nitrous Oxide Method for Quantitative Determination of Cerebral Blood Flow in Man: Theory, Procedure and Normal Values. S. S. Kety and C. F. Schmidt.—p. 476.
Effects of Altered Arterial Tensions of Carbon Dioxide and Oxygen on Cerebral Blood Flow and Cerebral Oxygen Consumption of Normal Young Men. S. S. Kety and C. F. Schmidt.—p. 484.
Effects of Increased Intracranial Pressure on Cerebral Circulatory Functions in Man. S. S. Kety, H. A. Shenkin and C. F. Schmidt.—p. 493.
Blood Flow and Oxygen Consumption of Human Brain in Diabetic Acidosis and Coma. S. S. Kety, B. D. Polis, C. S. Nadler and C. F. Schmidt.—p. 500.
Urinary Excretion of Insulin by Normal and Diabetic Subjects. I. A. Mirsky, C. J. Podore, J. Wachman and R. H. Broh-Kahn.—p. 515.

Effect of Penicillin on Antistreptolysin Formation.—Kilbourne and Loge divided 127 cases of hemolytic streptococcic pharyngitis into three groups. One group served as an untreated control, one group was treated with large single doses of penicillin, and the third received virtually continuous penicillin therapy. Antibody response, as measured by the antistreptolysin titers, was studied in all patients. In the untreated group the proportion of patients exhibiting a rise was comparable to that usually seen in streptococcic pharyngitis and scarlet fever. The antistreptolysin response in the group treated with continuous penicillin therapy was of appreciably lower frequency and magnitude than that manifested by the untreated group. Patients who received intermittent treatment with penicillin manifested an incidence and degree of antibody response intermediate between that of the untreated and continuously treated groups. Analysis of cases in this study in which late complications developed reveals data in agreement with this past experience. In 5 patients definite evidences of late sequelae developed. Two had rheumatic fever, 1 severe arthralgia with elevated sedimentation rate, 1 had microscopic hematuria, and another prolonged fever of nineteen days' duration. In all 5 patients a rise in antistreptolysin titer developed. Three had been treated with intermittent high dosages of penicillin, while the 2 remaining cases were in the untreated group. No late sequelae have been observed in the group treated with sustained penicillin therapy.

Journal of Investigative Dermatology, Baltimore

11:1-92 (July) 1948

Treatment of Chronic Ulceration of Postradiation Scar Tissue with Local Infiltration of Aqueous Solution of Penicillin. J. H. Lamb and H. L. Boyer.—p. 3.
Sensitization to Monoglyceryl Para-Aminobenzoate: Preliminary Report. R. L. Baer and L. Meltzer.—p. 5.
Effect of Aging Solution of Silver Nitrate on Its Cutaneous Reaction. L. E. Gaul and G. B. Underwood.—p. 7.
Lichen Striatus and Lichen Planus: Report of Case of Simultaneous Occurrence, with Discussion of Nomenclature and Mechanics of Linear and Systematized Dermatoses. H. Pinkus.—p. 9.
Diagnostic Test for Distinguishing Pemphigus, Dermatitis Herpetiformis, Disseminate Lupus Erythematosus and Erythema Multiforme Exudativum. A. L. Welsh.—p. 19.
Technic for Studying Epithelial Cells of Skin in Relation to Disinfection. L. H. T. Bernstein.—p. 49.
Philological Notes on Words Erythroderma, Erythrodermia and Erythema. M. Leider.—p. 63.
*Allergic Eczematous Reactions of Nail Bed: Persistent Subungual and Ungual Changes Based on Contact with "Undercoats" Containing Artificial Resins and Rubbers. M. B. Sulzberger, C. R. Rein, S. J. Fanburg and others.—p. 67.
Epidermiology of Skin Cancer. S. Peller.—p. 73.

Ungual Changes from Undercoats of Nail Polish.—Sulzberger and his co-workers say that a new nail disorder due to a nail polish "undercoat" has recently come to the attention of dermatologists. They believe it a conservative estimate that the actual number of cases extant at this writing is likely to be at least in the hundreds. The solution of phenol-formaldehyde resins and synthetic rubbers in methyl ethyl ketone which caused all the cases is of the type of formula common to several products, all of which have become available recently. The manufacturers of one brand estimate that one million women use their product each week. The authors report 12 cases due to this nail polish "undercoat" seen in their private practices between October 1947 and April 1948. The clinical features common to all cases, were: (1) a discoloration, varying from yellow through red-blue and magenta to brown and almost black, of the distal one to two thirds of every, or almost every, fingernail. This discoloration was diffuse but often also punctate; (2) separation, of variable degrees, of the distal nail from its bed; (3) a variable amount of dark, compact, apparently hyperkeratotic material under the nail; (4) a variable amount of change in the visible skin of the fingertip and perionychium, and (5) subjective symptoms, also of variable degree. The visible cutaneous changes, in general, were minimal and consisted of slight erythema, edema and scaling of the fingertip under the free edge of the nail of one or two fingers. One patient had severe involvement, including pustular paronychia, so that two fingernails were removed for relief. Further studies and additional cases indicate that the subjective symptoms can on occasion be practically absent, so that some patients are unaware of substantial subungual changes until they see them by chance at some time when the nail lacquer is removed. Different samples of the same brand of "undercoat" differ widely in their allergenic properties, so that some bottles may fail to evoke positive reactions to patch tests while others cause strong reactions in the same patient and at the same time.

Journal of Lab. and Clinical Medicine, St. Louis

33:789-918 (July) 1948

*Results of Vaccination Against Influenza During Epidemic of 1947. C. G. Loosli, J. Schoenberger and Gwendolyn Barnett.—p. 789.
Topical Application of Subtilin to Tuberculous Lesions in Man. S. M. Farber, H. R. Eagle, H. H. Anderson and R. D. Gorman.—p. 799.
Administration of Penicillin and Streptomycin by Means of Hypospray Apparatus (Jet Injection): Absorption, Toxicity and Stability. H. H. Hirsh, H. Welch, B. Milloff and S. Katz.—p. 805.
Use of Yeast Phase Antigens in Complement Fixation Test for Histoplasmosis: I. Preliminary Results with Rabbit Serums. S. Saslaw and Charlotte C. Campbell.—p. 811.
Concentration of Labile Factor of Prothrombin Complex in Human, Dog and Rabbit Blood; Its Significance in Determination of Prothrombin Activity. A. J. Quick and M. Stefanini.—p. 819.
Blood and Bone Marrow Concentration of Atabrine and Its Role in Aplastic Anemia. L. G. Parmer.—p. 827.
*Effect of Ligation of Pancreatic Ducts and of Pancreatectomy After Duct Ligation on Serum Lipase. M. M. Nothman, Dennie Pratt and J. Benotti.—p. 833.
A Resin Artificial Kidney. E. E. Muirhead and A. F. Reid.—p. 841.
Relation of Phenol Retention to Uremia and Effect of Phthalylsulfathiazole and Streptomycin on Phenol Production. S. L. Wallace, J. M. Little and J. R. R. Bobb.—p. 845.
Mechanisms of Desoxycorticosterone Action: I. Relation of Fluid Intake to Blood Pressure. D. M. Green.—p. 853.
Activity of Microbial Animal Protein Factor Concentrates in Pernicious Anemia. E. L. R. Stokstad, A. Pagg Jr., J. Pierce and others.—p. 860.

Vaccination Against Influenza.—Loosli and his associates say that in the fall of 1946 a study was organized at the University of Chicago to test further the usefulness of vaccination for protection against influenza. Two thousand and twenty students were employed in the epidemiologic study. Seven hundred and ninety volunteers were vaccinated and 1,230 served as controls. The vaccination program was carried out over a period from Nov. 6 to Dec. 6, 1946. No more than 50 per cent of the population in a given house were vaccinated. A record was kept of each student and all respiratory illnesses were recorded. A sharp increase in the incidence of acute disease of the respiratory tract occurred among the student population during the first week in March 1947. The majority presented symptoms characteristic of mild influenza. No prophylactic effect was observed after vaccination with combined A and B influenza virus vaccines. The time between vaccination and the onset of the epidemic was probably not important in accounting for the lack of effect of the vaccines. Of most importance was the absence of a close antigenic relationship between the viruses in the vaccine and the strains causing the epidemic; this has been demonstrated by virus isolation and serologic studies. Failure to demonstrate the usefulness of vaccine during the 1947 epidemic should not be taken as a reflection on the vaccine or on previous studies during which positive results were obtained. Studies made during the 1943 to 1945 epidemics established the value of vaccination against the disease caused by a virus strain closely related to the strains in the vaccines. However, a comparison of data concerning the value of vaccination during this and the 1943 to 1945 epidemics show clearly that a vaccine which affords protection during one epidemic does not insure protection against subsequent outbreaks. The efficiency of a vaccine will depend (1) on its ability to initiate an adequate antibody response and (2) on a close antigenic relationship between the virus components in the vaccine and those initiating the epidemic.

Effect of Ligation of Pancreatic Ducts on Serum Lipase.—Nothman and his associates say that experiments of Cherry and Crandall have become the basis for the clinical use of the serum lipase test in the diagnosis of pancreatic disease. However, if Popper and Sorter's results are correct, the serum lipase test is deprived of its essential experimental confirmation. Summarizing their studies, the authors conclude that serum lipase is of both pancreatic and extrapancreatic origin. Its pancreatic origin is proved by the following facts: (1) rise of serum lipase after ligation of the pancreatic ducts in all 21 dogs; (2) decrease of the serum lipase after total pancreatectomy, and (3) immediate drop of the serum lipase to almost zero in five days after total pancreatectomy, when the level for serum lipase previously has been raised by ligation of the ducts. The recurrence of serum lipase two to three weeks or longer after total pancreatectomy proves that there is also an extrapancreatic source for the enzyme. The liver is a possible source. The mechanism which leads to the rise of serum lipase is absorption of the enzyme into the blood stream after blocking of the flow of the pancreatic juice. When ligation of the ducts is followed by the production of a pancreatic fistula the elevated serum lipase drops to normal levels.

Journal-Lancet, Minneapolis

68:297-332 (Aug.) 1948

Lung Cysts. N. K. Jensen and T. J. Kinsella.—p. 297.
Submucous Lipomas of Ileocecal Valve. G. M. Kelby.—p. 301.
Staphylococcic Actinophytosis (Botryomycosis). N. C. Plimpton.—p. 305.
Early Diagnosis of Strabismus in Children. K. E. Sandt.—p. 307.
Conditions Simulating Roentgen Appearance of Intestinal Obstruction. A. W. Naslund.—p. 312.
Total Abdominal Hysterectomy: Analysis of 250 Consecutive Operations Without Mortality. P. Larson.—p. 314.
Sclerosing, Non-Suppurative Osteomyelitis. A. T. Hays.—p. 317.
Sterile Pyuria. W. J. Noonan.—p. 324.

Journal of Neurosurgery, Springfield, Ill.

5:327-412 (July) 1948

*Spontaneous Rupture of Cerebral Ventricles. A. Torkildsen.—p. 327.
Repair of Cranial Defects with Zirconium: Experimental Study. J. I. Bates and C. R. Reiners.—p. 340.
Reaction of Cerebral Tissue to Silver, Tantalum and Zirconium: Discussion of Use of These Metals for Hemostatic Brain Clips. J. I. Bates, F. H. Lewey and C. R. Reiners.—p. 349.
Vascular Tumors of Brain and Spinal Cord and Their Treatment. M. Trupp and E. Sachs.—p. 354.
*Surgical Management of Metastatic Brain Abscess. H. V. Rizzoli, W. S. McCune and I. J. Sherman.—p. 372.
Subarachnoid Alcohol Block in Paraplegia: Its Beneficial Effect on Mass Reflexes and Bladder Dysfunction. C. H. Sheldon and E. Bors.—p. 385.
Clinical Use of Fluorescein in Neurosurgery: Localization of Brain Tumors. G. E. Moore, W. T. Peyton, L. A. French and W. W. Walker.—p. 392.

Spontaneous Rupture of Cerebral Ventricles.—Torkildsen describes 5 cases of spontaneous rupture of the cerebral ventricular system. In 4 cases the rupture resulted in the formation of a cyst occupying the interpeduncular space, extending below the tentorium and covering the quadrigeminal plate. In case 1 an aperture was seen in the posterior portion of the lateral ventricle near the midline. This seems to be the most common location, as far as one can judge by the literature. In cases 2 and 5 a rupture of the posterior wall of the third ventricle had taken place. In case 3 there was no postmortem examination. Case 4 differs from the others inasmuch as the rupture did not create a cyst below the tentorium. After the spontaneous rupture the cerebrospinal fluid filled the supratentorial subdural space on the left side, resulting in an accumulation of the cerebrospinal fluid causing cerebral compression. The anamnesis gives information about an episode that probably was related to the actual rupture of the ventricular wall in only 1 of the cases. Stenosis of the sylvian aqueduct is a common cause of spontaneous ventricular rupture, but slowly growing tumors may also play a part. The accompanying intracranial hypertension should be treated by ventriculocisternostomy.

Surgical Management of Metastatic Brain Abscess.—Rizzoli and his co-workers have collected 10 cases of cured metastatic brain abscess. One of these patients died two years later of multiple abscesses elsewhere in the body, but there was no evidence of an intracerebral infection. In 7 of the 10 cases the abscesses were thoracogenic; 2 patients had had tonsillitis. The remaining patient had an abscess of the thigh at the beginning of his illness, but when cerebral symptoms developed, the roentgenogram also showed pneumonitis of the left lung. He was found on postmortem examination to have multiple bilateral chronic abscesses of the lungs. The authors stress that with the onset of cerebral symptoms, vigorous chemotherapy should be instituted, including intrathecal administration of penicillin (5,000 to 10,000 units) every two days and systemic use of penicillin. In addition, sulfadiazine should be administered. Streptomycin may be used if indicated. The patient must be watched and given supportive therapy, including blood, plasma, oxygen, and anticonvulsants if necessary. The primary focus should be treated conservatively but adequately to prevent further debilitation. Intracranial surgical treatment should not be considered for at least ten days after the onset of the cerebral symptoms. When the rate of improvement decreases, the abscess should be tapped through a trephine opening, the pus aspirated with a ventricular needle and penicillin (25,000 to 60,000 units) instilled

into the abscess cavity. If the responsible organism is more sensitive to streptomycin, this should be used instead. Occasional patients will be cured by tapping only. They should not be discharged as cured unless this is confirmed by an air study. Removal of the abscess through a craniectomy wound is probably a safer procedure than removal through an osteoplastic bone flap. However, the latter method can be used successfully, if care is taken to preserve the blood supply of the dural flap and the bone flap. The abscess can be aspirated while the enucleation is being done if this is necessary to reduce its bulk. Intramuscular penicillin therapy should be continued for at least three weeks postoperatively. Sulfadiazine may be administered during this peroid of treatment, especially if contamination occurs at operation. The pessimism with which metastatic brain abscess has been viewed in the past is no longer justified.

Journal Pharmacology & Exper. Therap., Baltimore

93:259-382 (July) 1948. **Partial Index**

Effects of Amphetamine and Cocaine on Neuromuscular Function. J. V. Luco, C. Eyzaguirre and F. Perez.—p. 261.
Effect of Quantitative and Qualitative Protein Deficiency on Tolerance to Emetine. K. Guggenheim and Edith Buechler.—p. 273.
Tissue Distribution of Toxicant Following Oral Ingestion of Gamma Isomer of Benzene Hexachloride by Rats. E. P. Laug.—p. 277.
Pharmacologic Comparison of Optical Isomers of Methadon. C. C. Scott, E. B. Robbins and K. K. Chen.—p. 282.
Rodenticidal Activity of Fluoroacetphenylhydrazide ("Fanyline") and Its Oral Toxicity to Several Species with Note on Toxicity of 64 Other Candidate Rodenticides. L. Karel.—p. 287.
Some Aspects of Thiamine Toxicity. J. A. Smith, P. P. Foa, Harriet R. Weinstein and others.—p. 294.
Pharmacologic Studies on Analgesic Piperidine Derivatives. L. O. Randall and G. Lehmann.—p. 314.
Inhibition of Succinoxidase by Vitamin P-Like Flavonoid 2',3,4-Trihydroxy Chalcone. G. R. Bartlett.—p. 329.
Comparative Pharmacology of Cyclohexylalkylamines. D. F. Marsh. —p. 338.
Toxicity and Muscular Effect of d-Tubocurarine Combined with Beta-Erythroidine, Myanesin or Evipal. F. M. Berger and R. P. Schwartz. —p. 362.
Absorption, Distribution, Excretion and Fate of Para-Aminosalicylic Acid. E. L. Way, P. K. Smith, D. L. Howie and others.—p. 368.

Kentucky Medical Journal, Bowling Green

46:301-348 (Aug.) 1948

Teropterin, Pteroyl-Triglutamic Acid in Human Cancers: Preliminary Report. G. F. Brockman and G. L. Simpson.—p. 309.
Variations in Man and in Disease. J. H. Blackburn.—p. 312.
Cancer of Large Bowel. C. C. Johnston.—p. 316.

SYMPOSIUM ON SKIN DISEASE

General Principles of Treatment and Mistreatment of Skin Diseases. P. Mapother.—p. 320.
General Principles in Dermatologic Diagnosis. R. L. Kelly.—p. 321.
Diagnosis and Treatment of Fungus Infections. W. U. Rutledge. —p. 323.

Report on Use of Nitrogen Mustard. J. Love, L. T. Minish and D. J. Vincent.—p. 326.
Radium Naso-Pharyngeal Applicator in Treatment of Hypertrophied Adenoidal Tissue. C. L. Woodbridge.—p. 329.
Twenty-Three Cases of Pulmonary Tuberculosis Treated with Streptomycin. R. Starr.—p. 332.
Dangers in Drugs. W. K. Keller.—p. 336.
Résumé of Fifty Years in Practice of Medicine. N. M. Garrett.—p. 338.
Precancerous Lesions of Skin. G. F. McAuliffe.—p. 340.

Minnesota Medicine, St. Paul

31:721-832 (July) 1948

Distribution of General Practitioners and Specialists. W. Duncan. —p. 745.
Community Leadership by Physicians. T. A. Hendricks.—p. 747.
Can Local Health Co-Operative Fit Into Voluntary Prepayment Medical Care Movement? L. S. Kleinschmidt.—p. 751.
Nebraska State Medical Association's Fee Schedule for Public Agencies. F. L. Rogers.—p. 756.
Plan for Establishing Local Health Councils. F. Sternagel.—p. 759.
Medical Organization and Social Progress. W. D. Stovall.—p. 762.
Review of Epidemiology of Scarlet Fever. A. G. Berger.—p. 765.
Osler in Minnesota: His Interest in Medical Education and Licensure. J. Eckman.—p. 776.
Role of Electrocardiogram in Cardiac Disease. H. L. Smith.—p. 788.

Oklahoma State Medical Assn. Journ., Oklahoma City

41:221-256 (June) 1948

Urology in General Practice. D. W. Branham.—p. 224.
Diagnostic Pointers in Rheumatic Diseases. E. Goldfain.—p. 225.
Streptomycin: Its Uses in Chest Cases. P. B. Lingenfelter.—p. 229.
Peptic Ulcer. H. A. Daniels.—p. 232.

Pediatrics, Springfield, Ill.

2:1-146 (July) 1948

*Treatment of Infantile Diarrhea with Streptomycin and Oral Amigen Mixture. Elvira Goettsch, G. Cobley and M. Mulloy.—p. 1.
Volume of Extracellular Body Fluids in Malnutrition. E. Kerpel-Fronius and C. Kovach.—p. 21.
*Hemolytic Streptococcal Vaginitis in Children. P. L. Boisvert and D. N. Walcher.—p. 24.
Severe Erythema Multiforme of Pluriorificial Type (Stevens-Johnson Syndrome); Resulting in Blindness in a Patient Treated with Trimethadione (Tridione). B. Shaffer and P. Morris.—p. 30.
Clinical Use of Alcohol-Refined Toxoids. J. M. Ruegsegger and G. K. Looser.—p. 35.
Congenital Alveolar Dysplasia: Developmental Anomaly Involving Pulmonary Alveoli. H. E. MacMahon.—p. 43.
Subcutaneous Administration of a Sulfadiazine-Sulfamerazine Combination in Children. L. B. Slobody and M. M. Willner.—p. 58.
Outlines for Well Baby Clinics: II. Recording Development of Second Twelve Months. E. S. Hewitt and C. A. Aldrich.—p. 69.
Childhood Behavior Sequelae of Asphyxia in Infancy: Special Reference to Pertussis and Asphyxia Neonatorum. G. B. Rosenfeld and C. Bradley.—p. 74.
Accidental Injuries in Epileptic Children. M. R. Aisenson.—p. 85.

Streptomycin in Infantile Diarrhea.—In a severe epidemic of infantile diarrhea in 1945 and subsequently, Goettsch and her co-workers found that bacteriologic cultures of the nasopharynx and the catheterized urine showed a predominance of gram-negative organisms of the colon group. Stool cultures were negative. Since the currently used measures were not entirely satisfactory, the authors began to use streptomycin. The effective dose for infantile diarrhea was found to be 0.5 Gm. intramuscularly and 0.5 Gm. orally per day for seven to ten days. The response of seriously ill infants with parenteral diarrhea to streptomycin was dramatic, presumably because of the specific action of the drug against the gram-negative organisms. Suggestions are offered for fluid and electrolyte replacement by means of an oral mixture of "amigen," which permits the introduction of potassium, calcium and nitrogen as well as sodium and chloride by mouth shortly after admission. The use of streptomycin and the oral mixture of "amigen" as an adjunct to the customary routine employed in previous years effectively shortened the hospital stay, decreased the amount of intravenous therapy and reduced the mortality. During the eight month period of observation no deaths were encountered which could be attributed to diarrhea.

Streptococcic Vaginitis in Children.—Boisvert and Walcher say that their attention was first focused on the probable relationship between hemolytic streptococci and vaginitis in children when in 1939 a 21 month old baby was examined because of vaginal discharge. A stained smear of the discharge showed gram-negative diplococci which suggested the diagnosis of gonococcic vaginitis. On culture, a pure growth of hemolytic streptococci was obtained. No gonococcus colonies were present. This study is based on the cultures taken on 286 patients seen on a pediatric inpatient service from 1928 through 1945 and in a pediatric clinic from 1935 through 1945. Five hundred and twenty-four vaginal cultures were examined. There were 37 patients with hemolytic streptococci, 33 with gonococci and 11 with pneumococci. Nasopharyngeal cultures were obtained on 30 of the 37 patients with hemolytic streptococcus vaginitis. The 3 case histories which are presented indicate great variability. The authors stress that the value of culturing all vaginal discharges cannot be overemphasized. Vaginitis due to hemolytic streptococci has been misdiagnosed as gonococcic vaginitis when only a direct smear of the discharge has been utilized for diagnostic purposes. Hemolytic streptococci are frequently found in the nasopharynx of those children with vaginitis due to hemolytic streptococci. In those instances in which grouping and typing of the streptococci from both the vagina and the nasopharynx were done, the same group and the same type were found in both places.

Physiological Reviews, Baltimore

28:283-382 (July) 1948

Some Thermodynamic and Kinetic Aspects of Metabolic Phosphorylation. A. G. Ogston and O. Smithies.—p. 283.
Alloxan Diabetes. F. D. W. Lukens.—p. 304.
Renal Function in Early Life. R. A. McCance.—p. 331.
Chemical, Physical and Morphologic Properties of Animal Viruses. J. W. Beard.—p. 349.
Relation of Nutritional Deficiencies to Graying. D. V. Frost.—p. 368.

Plastic and Reconstructive Surgery, Baltimore

3:385-516 (July) 1948

Plastic Surgery Routine for Surgical House Staffs. J. B. Brown, L. T. Byars, F. McDowell and M. P. Fryer.—p. 385.
Massive Combined Tube and Open Flap Used as Unity Rotation Pedicle Transplant for Repairs of Certain Deep Surface Defects. B. N. Soderberg.—p. 407.
Primary Repair of Total Avulsion of Skin from Penis and Scrotum. A. D. Davis and R. E. Berner.—p. 417.
Ischemic Contracture, Local, in Hand. S. Bunnell, E. W. Doherty and R. M. Curtis.—p. 424.
*Correction of Interdigital Burn Contractures of Hand. R. C. Tanzer. —p. 434.
Repair of Cicatricial and Dupuytren's Contractures of Hand. H. May. —p. 439.
Operation to Aid in Formation of New Nail Beds. Beverly Douglas. —p. 451.
Eyelid and Socket Surgery. F. Risdon.—p. 454.
Severe Lid Deformities: Principles of Repair. A. Callahan.—p. 456.
Ankylosis of Temporo-Mandibular Joint. Claire L. Straith and J. R. Lewis.—p. 464.
Pharyngeal Bursa Associated with Cleft Palate: Report of 2 Cases. M. Adair.—p. 478.
Epidermolysis Bullosa Hereditaria: Report of Case with Unusual Associated Deformities. E. A. Kitlowski and E. B. Banfield.—p. 481.
Repair of Surface Defect of Chest Following Gangrene. C. F. Steiss. —p. 489.
*"Vacutome"—New Machine for Obtaining Split Thickness Skin Grafts. D. E. Barker.—p. 492.

Interdigital Burn Contractures of Hand.—Severe burns of the hand frequently produce contractures of the dorsal aspect of the interdigital webs, characterized by the crescentic fold overlying the web proper. Tanzer explains a method of repair that was introduced in an army plastic center and has since been used with gratifying results. Illustrations show the method of replacement of an interdigital contracture by a rotated pedicle flap from the side of an adjacent finger, combined with a free graft. Photographs show the preoperative status and the condition of the hands two years after the operation.

New Machine for Obtaining Skin Grafts.—Barker points out that Padgett's dermatome advanced the taking of skin grafts tremendously, but it still has certain disadvantages. He describes a new machine which utilizes the principle of a suction cup with a knife attached. The knife can be set at variable distances. During the past nine months this device, the "vacutome," has been used on numerous patients with excellent results. Early it became apparent that unless guides were added a graft of uniform width could not be obtained. The author describes the technic of the "vacutome" and the clinical results obtained with it. He admits that a disadvantage of the technic is that one cannot obtain a graft with the "vacutome" from a thin depressed abdomen. Likewise in a thin and wasted person decided contour changes in the rib area would present a difficulty. Grafts of varying thickness can be taken from nearly all areas of the body. Uniform grafts can be cut from 4 to 15 inches (10.2 to 38 cm.) long, the length being determined by the skin area available. Skin guards prevent gouging of the skin beyond the desired area.

Proc. of Staff Meet. of Mayo Clinic, Rochester, Minn.

23:321-360 (July 21) 1948

Coarctation of Aorta: Historical Review. N. A. Christensen.—p. 322.
Pathologic Considerations in Coarctation of Aorta. J. E. Edwards, N. A. Christensen, O. T. Clagett and T. R. McDonald.—p. 324.
Collateral Circulation in Coarctation of Aorta. J. E. Edwards, O. T. Clagett, R. L. Drake and N. A. Christensen.—p. 333.
*Clinical Features in Coarctation of Aorta: Review of 96 Cases. N. A. Christensen and E. A. Hines Jr.—p. 339.
Value of Roentgenologic Diagnosis in Coarctation of Aorta. D. G. Pugh. —p. 343.
Studies on Blood Flow in Extremities in Cases of Coarctation of Aorta: Determinations Before and After Excision of Coarctate Region. K. G. Wakim, O. Slaughter and O. T. Clagett.—p. 347.
Preoperative and Postoperative Studies of Intraradial and Intrafemoral Pressures in Patients with Coarctation of Aorta. G. E. Brown Jr., O. T. Clagett, H. B. Burchell and E. H. Wood.—p. 352.
Surgical Treatment of Coarctation of Aorta. O. T. Clagett.—p. 359.

Clinical Features of Coarctation of Aorta.—Christensen and Hines say that adequate records for evaluation were available in 96 of the 119 patients with coarctation of the aorta observed at the Mayo Clinic between 1925 and 1947. The ages of the patients at the time that the diagnosis was first made varied between 4 and 59 years. Although in general surgeons prefer to operate on patients with this disorder prior to their twentieth birthday, only 26 per cent of this group were below that age. Nearly two thirds of the patients, however, were seen prior to the age of 30 years. The untimely deaths in young persons with coarctation may well explain the sharp drop in the age incidence after the third decade. Important features in the diagnosis of coarctation of the aorta are: (1) characteristic differences in the arterial pulsations and in indirect blood pressure in the upper and lower extremities; (2) the presence of one or more cardiac or cardiovascular murmurs; (3) the presence of a well developed collateral arterial system that by-passes the coarctation; (4) characteristic erosions seen as "rib notching" on roentgenograms and (5) characteristic direct intra-arterial radial and femoral arterial pulsations and blood pressure differences. The authors discuss the incidence of these and other diagnostic signs.

Psychiatric Quarterly, Utica, N. Y.

22:175-388 (April) 1948. **Partial Index**

Psychosomatic and Rorschach Aspects of Stuttering. F. R. Pitrelli. —p. 175.
Symptomatic Use of Electric Convulsive Therapy for Acute Psychoses of Military Personnel. J. B. Funkhouser.—p. 204.
Treatment and Theory of Prolonged Insulin Coma with Case Presentation. N. Kalichman.—p. 213.
Pentothal Sodium: Adjunct in Understanding of Schizophrenic Reaction: Preliminary Report. H. H. Donahue, M. L. Winer and N. M. Glazer. —p. 221.
Bronchial Asthma: Contribution to Relation of Emotional Factors to Bronchial Asthma. E. B. Kris.—p. 257.
Practical Methods of Group Psychotherapy. J. R. Jacobson.—p. 270.
Preventive Military Psychiatry in Light of Impending Military Conscription. S. R. Lehrman.—p. 302.
Regressive Electric-Shock in Schizophrenics Refractory to Other Shock Therapies. C. J. C Kennedy and D. Anchel.—p. 317.

United States Naval Med. Bulletin, Washington, D. C.

48:503-648 (July.-Aug.) 1948

Discussion of Reiter's Syndrome with Report of Case. C. A. Swanson and A. J. Delaney.—p. 503.
Formation of Phage in Cell-Free Preparations. A. P. Krueger, T. Cohn, P. N. Smith and C. D. McQuire.—p. 510.
*Nonoperative Treatment of Acute Empyema Thoracis with Penicillin: Discussion of Its Limitations and Subsequent Surgical Management of Its Failures. R. E. Brown and R. K. Moxon.—p. 513.
Dental Logistics in Amphibious Operations. F. G. Ulen.—p. 528.
Persisting Ocular Defects in Pacific War Prisoners. E. J. Olenick. —p. 538.
Six Atypical Cases of Syphilis. J. F. Morrell.—p. 547.
Neuropsychiatric Screening of a Million Men. E. C. Reitzel, V. L. Miller and G. W. Knox.—p. 555.
Rapid Technic for Diagnosis of Scabies. C. C. Carpenter.—p. 566.

Treatment of Acute Thoracic Empyema.—Brown and Moxon report 2 cases representative of that group of thoracic empyemas which will be cured by repeated thoracenteses with aspiration of pus and instillation of penicillin. In these cases clinical response is dramatically rapid. A 13 or 15 gage needle is used for thoracentesis in order that thick pus may be aspirated without difficulty. Saline irrigations facilitate this. Large doses of penicillin (200,000 to 600,000 units) are instilled at the completion of drainage and irrigation. Penicillin is administered intramuscularly in more conservative dosage of 50,000 units every three hours, and discontinued from four to seven days after the last thoracentesis. At first thoracenteses are performed daily, but as the fluid decreases and becomes negative in culture, the interval between taps is lengthened. The authors present 4 additional cases which illustrate the limitations of the nonsurgical treatment of thoracic empyema. These cases were transferred to their hospital after inadequate treatment elsewhere. Three of the 4 patients were admitted with large, sterile, undrained empyema cavities following eight to sixteen weeks of nonoperative treatment. In view of the strands and clumps of fibrin found at operation and the prompt healing which followed evacuation, the authors feel that their operative procedure was justified. If a thoracic empyema does not respond favorably to conservative treatment of one or two weeks' duration surgical intervention is indicated. This can take the form of intercostal drainage, thoracostomy with rib resection or decortication. The authors describe a simple method for maintaining relatively high degrees of suction on the empyema cavity in the ambulatory patient.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Australian and New Zealand J. Surgery, Sydney

17:235-312 (April) 1948

*Controlled Respiration and Curare in Modern Surgery. R. H. Orton.—p. 235.
Stress Incontinence in the Female. P. A. Treahy and H. K. Pacey.—p. 247.
Observations on Injuries of Radial Nerve Due to Gunshot Wounds and Other Causes. S. Sunderland.—p. 253.
Intracranial Hydatid Disease, with Report of Case. D. Miller and J. Fleming.—p. 291.
*Nerve Anastomosis in Treatment of Facial Paralysis. H. C. Trumble.—p. 297.

Controlled Respiration and Curare.—Controlled respiration developed as the result of thoracic surgery and curare as an adjunct in abdominal surgery. Today they are used together in both types of operation, though the reasons for their use differ somewhat in the two cases. Controlled respiration is a form of anesthesia in which a state of apnea is produced and the respiratory exchanges are maintained by periodic inflation of the lungs throughout the duration of anesthesia. In thoracic surgery its use prevents mediastinal "flap" and paradoxic respiration, two of the major hazards of open thorax surgery. It maintains respiratory exchanges in the presence of an open thorax. Controlled respiration possesses advantages over voluntary respiration in thoracic surgery and should be employed during abdominal surgery whenever respiratory depression occurs. By its use normal exchange of oxygen and carbon dioxide is possible in all circumstances. By producing muscular relaxation and abolishing reflexes curare allows the use of light anesthesia and therefore aids in the avoidance of shock. In abdominal surgery, light anesthesia combined with the use of curare and controlled respiration produced minimum disturbance in the patient compatible with adequate muscular relaxation. In thoracic surgery curare controls bronchial reflexes and with controlled respiration gives the most satisfactory conditions for surgery. The use of controlled respiration and of curare demands a high degree of anesthetic skill.

Nerve Anastomosis in Facial Paralysis.—Trumble employed anastomosis of hypoglossal and facial nerve in 18 patients with facial paralysis and in 2 with clonic facial spasm. The twelfth nerve was selected as the donor nerve because of the close relationship between the muscles of the tongue and those of facial expression. Recovery of tone and voluntary power was satisfactory in 18 patients, unsatisfactory in 1. One patient has not been reviewed. Recovery was satisfactory in 2 cases in which there was a delay of nine and a half months between the date of onset of facial paralysis and that of the reparative operation, and also in one other in which the delay was twenty-six months. These observations demonstrate that degeneration of muscle fibers and end plates is not of such importance as is generally believed.

British Medical Journal, London

2:1-60 (July 3) 1948

Changing Face of Medicine. L. Whitby.—p. 2.
Medicine and Public Health. A. S. MacNalty.—p. 6.
Administration of Medicine. E. R. Boland.—p. 9.
Health and Municipal Hospital Services of London. A. Daley.—p. 19.
End of "Compulsory" Vaccination. Greenwood.—p. 22.
Role of Part-Time Consultant. G. Lowe and T. N. Rudd.—p. 24.

2:61-118 (July 10) 1948

Thiouracil and Its Derivatives in Routine Treatment of Thyrotoxicosis. H. P. Himsworth.—p. 61.
Liver Function Tests in Cases Treated with Thiouracil Compounds. J. Goodwin.—p. 64.
Blood Diastase and Lipase Changes in Pancreatitis. H. Wapshaw.—p. 68.
*Streptomycin Dermatitis in Nurses. J. Crofton and H. M. Foreman.—p. 71.
Idiopathic Hypersplenism: Report of Case. R. Semple.—p. 72.
Peptic Ulcer During Pregnancy: Report of Case with Perforation. D. W. James.—p. 74.
Aplastic Anemia in Simmond's Disease: Report of Case. A. Bloom and C. C. Bryson.—p. 75.

Streptomycin Dermatitis in Nurses.—Crofton and Foreman observed that during a period of eighteen months 4 of a total of 80 nurses handling streptomycin at a London hospital had dermatitis. The exposure of these nurses varied from six weeks to six months. The dermatitis consisted of an itchy papular erythema of the skin around the eyes and over the elbow flexures. The hands were involved in only 1 of the nurses. Tests of cutaneous sensitivity elicited positive reactions in the 4 nurses with dermatitis, but negative in controls. The authors stress that persons handling streptomycin should wear rubber gloves and avoid soiling their skin with the material.

Edinburgh Medical Journal

55:257-320 (May) 1948

Treatment of Thyrotoxicosis. D. M. Dunlop.—p. 257.
Surgical Treatment of Thyrotoxicosis. K. P. Brown.—p. 265.
Pulmonary Moniliasis. R. F. Robertson.—p. 274.
*Blood and Bone Marrow in Sprue Syndrome: Study of 63 Cases. Elizabeth M. Innes.—p. 282.
*Intra-Uterine Penicillin. M. M. Kriseman.—p. 293.
Hemorrhage in Obstetrics: Relation Between General Practitioner and Emergency Services. R. De Soldenhoff.—p. 302.

Blood and Bone Marrow in Sprue.—Peripheral blood findings in a series of 63 cases of the sprue syndrome are reported in detail. The series consisted of 17 cases of tropical sprue, 27 cases of nontropical sprue and 19 cases of celiac disease. The characteristic picture in the adult cases was macrocytosis of the erythrocytes, with or without anemia, both macrocytosis and anemia being more severe in the nontropical than in the tropical group. There is a tendency for this macrocytosis to persist in spite of liver therapy. The cases of celiac disease showed a high incidence of anemia which was of the hypochromic microcytic variety and which was extremely resistant to iron therapy. The marrow picture is described in 18 of the adult cases. It was megaloblastic in 9 cases (in 2 of which liver therapy had previously been used), normoblastic in 5 cases and "intermediate" in 4 cases. The marrow was found to be normoblastic in both of the cases of celiac disease in which it was examined.

Intrauterine Penicillin.—The cases reported by Kriseman include 7 of incomplete abortion, 1 case of septic abortion, 2 cases of local uterine puerperal infection and 1 case of functional uterine bleeding. The effect of intrauterine instillation of penicillin was observed in these cases. Two methods of instillation were adopted, the continuous and the intermittent. The author gained the impression that penicillin when instilled into the uterine cavity is capable of being absorbed into the general circulation and thus must exert an adequate local concentration in the uterine wall and in the channels draining the organ; namely, the lymphatics and pelvic veins. The best method of injection is by intermittent instillation. An effective dose is 200,000 units of penicillin in 5 cc. of isotonic sodium chloride solution or distilled water injected at intervals of three hours.

Irish Journal of Medical Science, Dublin

271:289-336 (July) 1948

Modern Concept of Social Medicine. J. A. Ryle.—p. 289.
Combined-Thoracoplasty: Its Characteristic, Technic and Results. G. Maurer.—p. 297.
Shoulder Pain. C. Somerville-Large.—p. 303.
Selection of Cases for Artificial Pneumothorax. M. M. Conran.—p. 315.
B-Diethylaminoethyl Dehydrocholate in Treatment of Fibrositis. D. Roden and F. Wrigley.—p. 330.

Lancet, London

2:41-84 (July 10) 1948

*Gamma-Globulin in Prevention and Attenuation of Measles. P. Hartley and others.—p. 41.
*Operations for Hernia: Technic of Nylon Darn. G. E. Moloney, W. G. Gill and R. C. Barclay.—p. 45.
Four Cases of Leptospira Canicola Infection in England. L. J. M. Laurent, T. St. M. Norris, J. M. Starks and others.—p. 48.
Isotopes and Radiation Hazards. F. Howarth.—p. 51.
Neonatal Gastrocolic Fistula: Report of Case. N. K. Pein.—p. 53.
Apparent Acute Glomerulonephritis Albuminuria: Report of Case. J. Crofton and L. Truelove.—p. 54.
Epidemic of Bullous Erythema on Legs Due to Bed-Bugs. J. Kinnear.—p. 55.

Gamma Globulin for Measles.—Hartley and his associates of the British Committee on Blood Transfusion Research say that the American Committee put at their disposal normal human serum gamma globulin antibodies prepared according to the technic of Cohn. Although tests with this material were carried out in different environments, the committee kept the trials

under personal supervision. The following conclusions are stated: 1. Gamma globulin prepared by Cohn's method contains measles antibodies in high concentration. 2. The volume of gamma globulin required for the prevention and attenuation of measles is about half the volume of convalescent measles serum required. 3. Though superior in action to convalescent measles serum, gamma globulin in the doses used in these trials did not give full protection in all cases. Some degree of attenuation was obtained in almost all cases. 4. Though the potency of solutions of gamma globulin cannot be quantitatively estimated, the samples examined nearly two years after their preparation showed high protective and attenuating properties, differing but little from others which had been in circulation for a shorter time. 5. No local or general reactions followed the injection of gamma globulin.

Nylon Darn for Repair of Hernia.—Moloney and his co-workers have used nylon as a darning material to repair hernias, particularly direct and indirect inguinal hernias, both simple and strangulated. They list the requirements of a lattice that is used to reinforce a weak area and show that nylon meets those requirements. They describe and illustrate the technic of the nylon darn and say that it has given satisfaction, especially in strangulated hernia.

Tubercle, London

29:121-144 (June) 1948

Anesthesia for Major Surgery in Thoracic Tuberculosis. E. Joan Millar. —p. 121.
Case of Advanced Bilateral Pulmonary Tuberculosis Treated with Streptomycin. B. R. Sreenivasan.—p. 128.
Fate of Tuberculous Cavity. B. Mann.—p. 131.

29:145-167 (July) 1948. **Partial Index**

Review of Tuberculosis Control in the United States. F. J. Weber. —p. 145.
*Atelectasis During Collapse Therapy for Pulmonary Tuberculosis: Preliminary Note. J. Cuthbert and M. M. Nagley.—p. 154.
Work Done by Tuberculosis Patients. W. D. Gray.—p. 160.

Atelectasis During Collapse Therapy.—Cuthbert and Nagley have taken atelectasis to mean a ground glass appearance of a lung, a lobe or part of a lobe occurring during collapse therapy and accompanied by clinical manifestations such as rise of temperature, leukocytosis and malaise. This, they feel, is the condition—be it airlessness or not—that is commonly called "atelectasis." Cuthbert, impressed with the finding that the figures given for tuberculous tracheobronchitis in pulmonary tuberculosis would not account as a causative factor for the large number of "opaque lobes" seen in routine sanatorium work, proceeded to turn his attention to the more peripheral bronchial tree and to the bronchus draining the cavity. Postmortem studies on 26 patients revealed that the draining bronchus or bronchi were involved in 21. The usual changes were: swelling, edema and hyperemia of the mucosa and tenacious secretion in the lumen. Microscopically, tuberculous foci are present in the larger draining bronchi, between the epithelium and the cartilage, with no surface erosion at first. Later, deciliation of the bronchial mucosa, formation of granulation tissue with resultant irregularity of the lumen and, in a minority of cases, development of caseous bronchitis or partial fibrous stenosis take place. Nagley was interested in the selective, and often lobular, distribution of atelectasis occurring after artificial pneumothorax induction and carried out bronchoscopies and bronchograms on many patients without being able to demonstrate major bronchial disease. He was of the opinion that atelectasis of this nature was due to factors other than, or in addition to, disease of the major bronchi and almost certainly the etiology lay peripheral to these structures and probably in the small foci of radiologically visible tuberculous parenchymatous inflammation so often seen on the straight roentgenogram. Microscopic studies corroborated this. The authors consider the advisability of the abandonment of artificial pneumothorax when atelectasis of a lobe occurs. They regard a cavity in such an atelectatic lobe as dangerous if collapse is maintained, but this has not been fully proved. The described pathologic changes and their sequels seem to militate against the induction of artificial pneumothorax in the presence of roentgenologic signs of patches of tuberculous pneumonitis.

Acta Tuberculosea Belgica, Brussels

39:149-222 (June) 1948

Angiopneumography: Its Contribution to Interpretation of Roentgenography of Thorax and Its Importance for Study of Pulmonary Circulation. L. de Carvalho.—p. 149.
*Detection of Tuberculosis by Systematic Examination of Groups: Comparison of Results Obtained by Roentgenoscopy and Roentgenography. Mrs. Olbrechts-Tyteca.—p. 172.

Detection of Tuberculosis by Roentgenoscopy and Roentgenography.—Olbrechts-Tyteca says that systematic roentgenologic examination of groups was introduced by the antituberculosis dispensaries in 1935. The group examinations were made particularly in schools. Two forms of examinations were employed, roentgenoscopy and roentgenography. Roentgenoscopy, performed on 45,428 persons, and roentgen photography, performed on 70,357 persons, have revealed an incidence of tuberculosis that was five times higher in the first than in the second group. The superiority of roentgenoscopy over roentgenography was demonstrated again when the material was subdivided according to different types of groups examined and according to age and sex. Nearly two thirds of the patients detected by roentgenologic examinations of groups were not known to be tuberculous before. These persons would probably not have been recognized as tuberculous without the systematic group examinations, as there was no tuberculosis in the families and they did not have symptoms.

Nordisk Medicin, Stockholm

38:1247-1280 (June 25) 1948. **Partial Index**

*Nitrogen Mustards in Lymphogranulomatosis Maligna, Polycythmia and Myelomatosis. K. Iversen and K. Kjerulf-Jensen.—p. 1248.
Instability in Degeneration of Lumbar Disk: Anatomic Study. C. Hirsch. —p. 1252.
Treatment of Dural Lesions in Fracture of Frontal Sinus. E. Renvall and W. Behrman.—p. 1254.
Diagnostic Disk Puncture in Sciatica. K. Lindblom.—p. 1256.
Fenestration Operation in Chronic Adhesive Otitis. C. A. Hamberger. —p. 1256.
Icterus Gravis After Isoimmunization with A-Agglutination. M. Grove-Rasmussen, F. Tudvad and G. Jørgensen.—p. 1259.

Treatment with Nitrogen Mustards in Lymphogranulomatosis Maligna, Polycythemia and Myelomatosis.—Iversen and Kjerulf-Jensen report on 21 cases of disease treated with a total of one hundred and thirty-eight injections. In most of the 9 cases of lymphogranulomatosis maligna, all verified by biopsy, the immediate effect was excellent. The treatment, however, can hardly induce more effective and more lasting remissions than roentgen treatment, but in patients with the disease in the roentgen-resistant form but sensitive to nitrogen mustards the treatment will be a valuable supplement to roentgen treatment and it will also be indicated in cases with disseminated foci. Treatment attempted in 3 cases of advanced sarcomatosis gave brief improvement in the general condition in 1 case. In polycythemia and myelomatosis the preliminary results surpass results published in America; in the 3 cases of typical grave myelomatosis, verified by biopsy and observed for five to eight months, reduction of pain and simultaneous improvement in the general condition resulted and 2 of the patients were able to return to work, while in the 6 cases of polycythemia, observed for up to seven months, there was immediate subjective improvement followed by decrease in the erythrocyte values and hemoglobin percentage and improved general condition.

Policlinico (Sez. Prat.), Rome

55:481-512 (April 19) 1948. **Partial Index**

*Malarial Amaurosis: Case of Malarial Optic Neuritis. A. Pozzi and C. Iandolo.—p. 481.
*Multiple Sclerosis. G. Cerquetelli and C. Cantalano Nobili.—p. 486.

Malarial Amaurosis.—A woman 44 years of age presented a rapidly progressive loss of vision with complete amaurosis within six days. The first tertian malarial attack occurred two days after occurrence of amaurosis. Plasmodium vivax was found in the blood. The malaria was benign and controlled by quinine treatment. The visual condition progressed to bilateral optic atrophy. The case demonstrates possibility of early involvement of the optic tract by P. vivax.

Multiple Sclerosis.—Cerquetelli and Nobili report 3 cases of multiple sclerosis in patients who were seen in the course of the last two years at the Clinica delle Malattie Nervose e Mentali dell' Universita di Roma. The authors believe that the main causative factor in multiple sclerosis is the arteriolar spasm, which is reversible early in the course of the disease by the effect of histamine. The authors report good results from intravenous injections of 0.25 mg. of histamine for seven to fifteen consecutive days during the early period of the disease. The good results have persisted up to the present (between one and two years after discontinuation of treatment). The treatment is harmless and should be resorted to as soon as possible, even if there is still slight doubt as to the diagnosis. In the cases reported by the authors visual symptoms predominated. The aforementioned doses showed favorable effect on the arteriolar retinal spasm.

Presse Médicale, Paris

56:517-528 (July 24) 1948

*Blood Accidents in Course of Treatment with Streptomycin. E. Benhamou and R. Destaing.—p. 517.
Preoperative Management, Resuscitation Carried out During Operation and Treatment of Postoperative Disorders Based on Data Obtained by Phillips and Van Slyke's Method. M. Roux and M. Bucaille. —p. 518.
New Progress in Treatment of Visceral Leishmaniasis. P. Giraud, R. Bernard, R. and Liliane Guerrini-Pélissier.—p. 519.

Untoward Blood Reactions to Streptomycin.—Benhamou and his co-workers treated a child aged 11 with Pott's disease of eight months' duration, who presented meningeal symptoms, with 2 Gm. streptomycin daily by the intramuscular route. The general condition of the child improved, but a generalized purpura appeared on the thirtieth day of treatment with streptomycin. Sternal puncture revealed a considerable number of nonnucleated myelocytes. Penicillin in large doses and blood transfusions did not prevent death, which occurred within forty-eight hours. A child aged 3 with tuberculous meningitis was treated with streptomycin for nine months and was still receiving 0.50 Gm. of the drug daily by intramuscular route. Petechiae were observed at the level of the eyelids after each lumbar puncture. The white blood count revealed 18 per cent polymorphonuclear neutrophils. The petechiae disappeared and the number of the granulocytes increased to 40 per cent after the patient has been given 10 mg. of folic acid daily. Eosinophilia with a ratio of 12 to 36 per cent was observed in 17 of 21 patients treated with streptomycin for five to nine months. It reached its maximum about the third or fourth month of the treatment and subsided four to six weeks after treatment was discontinued. Counts of red and white blood corpuscles and of blood platelets should be repeated frequently in the course of prolonged treatment with streptomycin. Leukopenia and granulopenia should be considered as warning signs; the dose of the drug should be reduced and combined with 10 to 20 mg. of folic acid per day. The occurrence of purpura, abnormal bleeding or unusual pallor is suggestive of an agranulocytic syndrome which may be associated with a myelocytic marrow of the Rohr type. Streptomycin should be discontinued and treatment with transfusions, penicillin and folic acid substituted. Eosinophilia does not suggest an unfavorable prognosis.

Schweizerische medizinische Wochenschrift, Basel

78:729-752 (July 31) 1948. **Partial Index**

*Experiences in Treatment of Hodgkin's Disease and Leukemia with Nitrogen Mustards. A. Alder.—p. 729.
Experimental Study on Action of Dihydrotachysterol in Man and Dogs. R. S. Mach and P. Ducommun.—p. 732.
Technic of Transfusions and Intravenous Injections During Operations. H. Zbinden.—p. 743.
Quantitative Determination of Carbon Monoxide in Air. B. Souček. —p. 743.
Blood Cholesterol in Hypophysio-Diencephalic Disorders. H. Zondek, H. Leszinsky and Gerda Wolfsohn.—p. 746.

Nitrogen Mustards in Hodgkin's Disease and Leukemia.—Alder treated 8 patients with Hodgkin's disease and 2 with chronic myeloid leukemia. He preferred the direct injection to the infusion with sodium chloride and dextrose solution. He draws the desired quantity of the nitrogen mustard into a syringe of 20 cc. capacity and then draws up as much blood as possible. The mixture is then injected. Signs of irritation and painfulness of the veins were rare. A total of 50 to 60 mg. was given in the course of one series of treatments. The results obtained can be compared with those of roentgen irradiation, but the treatment with nitrogen mustard has the advantage that not only the irradiated but all lymph nodes are influenced. The temperature usually decreases to normal in eight to ten days after the onset of treatment. The leukocyte count of the blood rapidly decreases, but the leukopenia was never sufficiently severe to necessitate interruption of the treatment. Lymphocyte and granulocytes also show a decrease. Reduction in the size of the lymph nodes becomes evident in about a week. Recent enlargements decrease after three or four injections, but old ones with fibrotic and necrotic changes remain uninfluenced. The author is convinced that nitrogen mustard is a valuable addition to the therapeutic armamentarium.

Semaine des Hôpitaux de Paris

24:1937-1978 (Aug. 10) 1948. **Partial Index**

*Bilateral Resection of Certain Prefrontal Cortical Areas (Topectomy). J. Le Beau.—p. 1937.
*Treatment of Anxiety States by Topectomy. J. Le Beau, M. Bouvet and M. Feld.—p. 1942.
*Treatment of Irreducible Pain by Topectomy. J. Le Beau, M. Bouvet and M. Rosier.—p. 1946.

Bilateral Resection of Certain Cortical Areas.—Le Beau treated 10 patients with anxiety states and 10 patients with irreducible pain by bilateral fractional resection of cortical areas. "Topectomy," a term coined in the United States for this operation, was practiced first by Pool in New York in 1947. Satisfactory results were obtained in these 2 series of patients by excision of Brodman's areas 9 and 10 and occasionally of area 46. Not more than 13 to 14 Gm. of substance should be excised. The areas 9 and 10 are connected with the medial thalamic nuclei, and area 9 is also connected with the nuclei of the septum of the preoptic region. The most important region is that of the junction of areas 9 and 10; a mechanism may therefore be considered in which the thalamic projection fibers act as intermediaries. Compared with frontal leukotomy, topectomy seems to have the advantages of avoiding deleterious alterations of personality and of intellect. There was much less disturbance of sphincter control than after lobotomy. The ablation of areas 9 and 10 seems to exert an elective action in reducing anxiety.

Topectomy for Anxiety States.—Le Beau and his co-workers treated 10 patients—5 adults, 4 men and 1 woman, between the ages of 25 and 48, and 5 children between 5 and 12 years, who had mental disturbances of anxiety type, by bilateral resection of area 9 and occasionally of area 10. Pool's operative principles were applied. All 10 patients operated on suffered from anxiety associated with brain lesions such as tumor, abscess, encephalitis and epilepsy. The results obtained were satisfactory except for the adult epileptics. The restlessness was allayed in all patients; aggressiveness was neutralized or attenuated. The intelligence was not reduced in any of the patients; the intervention was even followed by a pronounced progress of the intellectual development in one of the children with epilepsy. Not only did the restlessness subside, but the epileptic attacks failed to recur after the topectomy in children. The longest follow-up did not exceed fifteen months, so that the results must still await the test of time.

Treatment of Intractable Pain.—Le Beau and his co-workers treated 10 patients, 7 women and 3 men between the ages of 28 and 67 with facial and perineal neuralgias, by topectomy. In 5 of the patients the pain was definitely organic; 3 patients had anesthesia dolorosa, and 2 presented a chronic neuralgic condition with hypochondriac tendencies. The pain subsided in 9 patients; 1 patient continued to complain about pain, but no longer asked for morphine. The follow-up varied from two weeks to ten months. Topectomy practiced at the level of areas 9 and 10 did not cause any alterations of intellect or personality. It may be preferred to bilateral frontal leukotomy in surgery for intractable pain.

Book Notices

Treatise on Surgical Infections. By Frank Lamont Meleney, M.D., Associate Professor of Clinical Surgery, College of Physicians and Surgeons, Columbia University, New York. Oxford Medical Publications. Cloth. Price, $12. Pp. 713, with illustrations. Oxford University Press, 114 Fifth Ave., New York 11, 1948.

In addition to containing a digest of hundreds of contributions on surgical infections, this book is richly augmented by twenty years' experience of the author, who has been the foremost pioneer in surgical bacteriology in this country. One of the greatest attributes of the book is the excellent manner of presenting historical and fundamental data in a chronologic and practical way. The history of hospital gangrene from the Civil War days up to its conquest by a combination of chemotherapy and surgery is an example of masterful presentation which will give the young surgeon a thorough knowledge and background of these subjects.

The sources of operative wound contamination with proper emphasis on the throat and nose of operating room personnel are effectively presented. It is significant that after years of experience in surgical asepsis the author feels that preparation of the skin for operation, by soap, water, alcohol and ether, is not sufficient, but should be followed by application of 3½ per cent tincture, or an aqueous solution, of iodine. The splendid discussion of the various methods of sterilization with special emphasis on steam and the autoclave should be of great benefit to all operating room supervisors. Details of sterilization of air by the ultraviolet ray in the operating room are given. The author is apparently moderately in favor of this aid in prophylaxis of infection. Antisepsis and disinfection are adequately discussed by Dr. E. J. Pulaski, along with a complete description of the various agents used.

The various factors in operating technic, including gentleness, use of silk instead of surgical gut, proper ligation of vessels, are discussed in a splendid fashion. The results of the various teams appointed by the National Research Council to study infections and chemotherapy are presented; the most important data revealed that local application of sulfonamide drugs is ineffective in preventing development, but is effective in reducing the systemic effects, particularly the mortality rate. The two chapters containing 160 pages contributed by Balbina Johnson on the morphology and cultural characteristics of bacteria and methods for bacterial cultivation are excellent indeed.

Bacterial entrance into the human body and methods of spread are clearly described. The same can be said about bacterial synergism and bacterial antagonism. Appropriately, nearly 60 pages are devoted to a discussion of the various defenses or immunologic mechanisms; this is clearly written and should be readily understandable by recent medical graduates, which cannot be said of all discussions on immunity.

The first disappointment encountered was the 30 pages spent on a discussion of bacteriophage. If this book had been published before penicillin and the sulfonamide compounds were introduced that amount of space for this subject might have appeared justifiable.

The most serious defect in the entire book is found in the last chapter, which deals with antibiotic therapy in surgical infections, and contains only 40 pages, 28 of which are consumed by detailed case reports of the beneficial action of penicillin. Every physician has a variable number of cases representing triumphs of penicillin over previous methods of therapy including chemotherapy with sulfonamide drugs, but has a relatively poor conception as to the relative effectiveness in various conditions such as osteomyelitis, peritonitis, pylephlebitis, cholangitis and the numerous infections discussed in the case reports. It would have been much more informative if this space had been devoted to a discussion of results in various types of infection as influenced by various types of organism, stage of disease, etc. Such a summary is presented but consumes only one and a half pages; obviously, only gross facts now well known to all graduates of medical schools could be presented in this limited space. In this chapter on clinical discussion slightly less than two pages are devoted to streptomycin. The clinical discussion on bacitracin (a drug representing one of the many fine contributions by the author) is justifiably short, since this drug is not yet available to the medical public, although preliminary data on its effectiveness are encouraging.

Diagnostic et traitement des maladies de la colonne vertébrale. Par Jean Saidman. In two volumes. Cloth. Price, 4,750 francs. Pp. 1244, with 1324 illustrations. G. Doin and Cie, 8 Place de l'Odéon, Paris 6e, 1948.

In these two volumes of 1,244 pages the author has tried to present a comprehensive work on diseases of the vertebral column encompassing clinical examination and roentgen technic, interpretation and treatment. It is apparent that a vast amount of clinical material has been combed to present what is in effect an excellent radiologic treatise. If one were to evaluate the book as such it could be considered a most comprehensive and well illustrated work on the subject. Its value from this standpoint is enhanced by the clinical introduction to each chapter and the brief discussion of treatment. However, the orthopedic surgeon and student will find it notably deficient as to therapeutic procedures. This phase is covered in a brief and cursory manner. The illustrations are almost entirely devoted to roentgenograms and outline drawings illustrative of the roentgenographic pathologic changes. The author leans rather heavily toward physical therapy as the chief modality of treatment. Discussion of the orthopedic management falls far short of the mark both as to presentation and coverage of accepted principles as practiced in this country.

Altogether, this is an excellent book for the radiologist and for the orthopedic surgeon interested in a fine presentation of the roentgenographic aspects of vertebral disease.

Handbook of Psychiatry. By Winfred Overholser, A.B., M.D., Sc.D., Superintendent, Saint Elizabeths Hospital, Washington, D. C., and Winifred V. Richmond, B.S., A.M., Ph.D. Cloth. Price, $4. Pp. 252. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.

This volume is a book on psychiatry intended essentially for the latiy, the nontechnical reader and the practitioner who needs a simple review and re-orientation on modern thinking in this specialty. It is written by two people of authority, in simple concise language which does not attempt the dramatic but which brings home the lesson well.

These authors review the breadth of the field of psychiatry from simple definitions through the gamut of adult psychiatry, child psychiatry, problems in peace and war and applications to the understanding of ordinary social and criminal behavior. It is amazing how much is encompassed in this short treatise; yet all of it done simply. The reader has a sense of having learned something without being "whipped-up" as is so often the case in books intended for lay consumption.

This is the kind of book that may well be recommended for its fundamental truths, its easy readibility and its storehouse of basic knowledge.

Economic Man in Relation to His Natural Environment. By C. Reinold Noyes. Volumes I and II. Cloth. Price, $15. Pp. 692; 695-1443, with 69 illustrations. Columbia University Press, 2960 Broadway, New York 27, 1948.

Mr. Noyes has attempted to synthesize the results of experimental medicine and psychology into a conceptual scheme of man, alone in the physical world. Before social sciences can become true sciences, Mr. Noyes holds, the social scientist must understand the biologic and physical background of man's social existence. Equally important is the adoption of the technic and methods of the established sciences.

The study is presented as step one of a proposed three part survey of man's economic life. After an understanding has been reached of man's physical existence, the second step would be an examination of the technical methods by which man has adapted himself to his environment. The third step would be an investigation of the social institutions which coordinate and direct the efforts of men.

The body of the study is a discussion of a wide range of physical and psychologic experiments, thoroughly documented in lengthy appendixes, which seek to explain the actions of human beings. Three conclusions are reached as to the fundamental motivation of man. First is the view, also held by many

biologists, that organisms are not reaction mechanisms which merely respond to external stimulation. Rather they are "more or less elaborate complexes of processes, in any one of which variations from homeostasis set up corrective balancing responses" (p. 996). Man's integrated behavior stems primarily from these variations. The source of excitation is outside the brain, but the continuous interrelation of the brain and the outside forces is a much more vital one than that of mere external sensory stimuli to an organism.

The second conclusion, which proceeds from the first, is that some organisms—chiefly man—exhibit integrated behavior in the absence of immediate external stimuli. This implies that such behavior is initiated from a secondary source in the brain itself. In this type of behavior memory and volition are essential.

The third conclusion is what Mr. Noyes believes to be the major contribution of his study. He states that the fundamental fact of man's relation to his environment appears to be that nature imposes obstacles to man's efforts to satisfy his wants and that the value of a particular object is how much effort a man is willing to expend to obtain it. This idea of value is in sharp contrast to the classical economist's theory that utility and scarcity create value.

If the components of the means required to satisfy a want could be measured quantitatively, it would be possible to establish a whole new scheme of analyzing economic life. This measurement, however, would require the definition of the criteria by which a want is judged; then the "real" cost of any effort could be recorded in quantitative terms. At this point in the synthesis Mr. Noyes is faced with the same dilemma as has brought previous social scientists to a halt in their search for an exact social science. In the definition of the criteria for judging a specific want, the necessary inconsistencies, and immeasurability and incomparability of many of the magnitudes of the means, make it impossible to assign definite values. Furthermore, the choice of means which man will take to satisfy his wants cannot be determined in advance.

Not much material in this book is directly pertinent to the practice of medicine.

Diseases of Poultry with Specialist Chapters on Poultry Husbandry. By W. P. Blount, Ph.D., F.R.C.V.S., F.R.S.E., Major, Royal Army Veterinary Corps, and various contributors. Cloth. Price, $6. Pp. 562, with 116 illustrations. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

Twenty-four contributors from many different countries emphasize the part that the veterinary profession has taken in the poultry industry. Certain diseases of poultry are capable of infecting man, and these are of interest to the physician. Psittacosis, tuberculosis, encephalomyelitis, listerellosis, salmonella infections and swine erysipelas are discussed in more or less detail. The author believes that poultry are of little significance in the epidemiology of brucellosis, which is at variance with the experience of investgators in the United States. Exception will also be taken to the statement that limberneck (botulism) in poultry is fairly common in the United States because of feeding the contents of "blown" cans of foodstuffs to poultry. Nearly thirty years ago, the commercial canning industry solved the botulism problem in this country.

The book, as a whole, makes a valuable contribution to poultry husbandry.

The Yearbook of Psychoanalysis. Vol. III, 1947. Managing Editor: Sandor Lorand, M.D. Editorial Board: Henry Alden Bunker, M.D., Ernest Jones, M.D., Bertram D. Lewin, M.D. and C. P. Oberndorf, M.D. [Reprints]. Fabrikoid. Price, $7.50. Pp. 309. International Universities Press, 227 W. 13th St., New York 11, 1948.

This book represents the third volume of a collection of psychoanalytic papers chosen by the editors as suitable for publication in a "Yearbook." As has been previously noted by at least one reviewer, no reasons are given for the particular choice of selection. There are twenty articles in the present volume with an additional page entitled, "Selected Reading," but here again no explanation is made as to why the particular productions listed were chosen. Most of the articles are well written. They cover the psychoanalytic approach to various fields from the opening paper regarding Freud's place in the history of science and a previously unknown (here reprinted) article entitled, "An Unknown Autobiographical Fragment by Freud," through investigation in melancholia and other types of depression, compulsion neuroses and obsessional ritual to the development in the theory and practice of psychoanalytic technic, mental and physical origins of behavior and modern concepts regarding war neuroses. This book is recommended primarily to psychoanalysts and advanced students of psychoanalysis. It is not recommended reading for the general public or even the medical profession in general because the material chosen is too technical and will not interest many physicians with the exception of those indicated. Nothing relating to psychosomatic problems or research has been incorporated in this issue.

Diagnosis in Daily Practice: An Office Routine Based on the Incidence of Various Diseases. By Benjamin V. White, M.D., Assistant Clinical Profesor of Medicine, Yale University School of Medicine, New Haven, Conn., and Charles F. Geschickter, M.D., Professor of Pathology, Georgetown University Medical School, Washington, D. C., Fabrikoid. Price, $15. Pp. 693, with 360 illustrations. J. B. Lippincott Co., E. Washington Square, Philadelphia 5, 1947.

This unique text should have an appeal to interns, residents and practitioners. Part one, on "The Diagnostic Survey," is designed to give the reader an idea of the probability factor in diagnosis. Unfortunately, this is not especially valuable in individual cases. Part two deals with the differential diagnosis of presenting symptoms as related to the various systems. Part three is an essay on physical diagnosis, while part four embodies common laboratory procedures. In part five, which constitutes one half the book, the diagnosis of various diseases according to systems of the body is dealt with. The book is replete with excellent photographs and drawings. There are many tabulations that make for easy reference.

The Microscope: Its Theory and Applications. By J. H. Wredden, F.R.M.S. With an historical introduction by W. E. Watson-Baker, A.Inst.P., F.L.S., F.R.M.S. Cloth. Price, $5.50. Pp. 296, with 298 illustrations. Grune & Stratton, 381 Fourth Ave., New York 16, 1948.

A book on the microscope and its use is a welcome addition to the literature. However, the author, who had most of his experience in connection with industrial microscopy, does not meet the needs for an adequate treatise on medical microscopy. The illustrations are of old models and not of up-to-date instruments. Many of them are made from English instruments with which the American physician and microscopist is not acquainted.

The discussion of the fundamental principles of the optics involved, of illumination, is technical and adequate. One chapter contains practical suggestions on the proper use and application of the microscope. The polarizing microscope and micrometry are discussed in separate chapters. Another chapter is devoted to photomicrography, largely as it is employed in industry. Similarly, the two chapters on preparation of specimens for microscopy is written for biologists and physicists rather than for medical workers.

This volume may be of interest to certain fields of microscopy but falls short in its practical application in clinical pathology and allied medical fields.

Radium Dosage: The Manchester System. Edited by W. J. Meredith, M.Sc., F.Inst.P. Compiled from articles by Ralston Paterson, M.D., F.R.C.S., F.F.R., and others. Cloth. Price, $4.50. Pp. 124, with 42 illustrations. Wiliams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

"Radium Dosage," by Meredith, is a detailed presentation from the Manchester group of its system of radiation therapy. Particular reference is made to procedures for calculation of dose. The material is exceedingly complete and highly technical, exceeding considerably in its precision the predictability of location of the disease to be treated.

This work is a tribute to the patience and thoroughness of the Manchester School of Radiation Therapy, as well as to the clinical applicability of biophysics to therapy.

Las enfermedades mentales en Cuba: Estudio estadistico. Por el Dr. José Angel Bustamante. Paper. Pp. 199, with illustrations. Tamayo y Cia, Habana, [1948].

This little book contains statistics on mental diseases in Cuba, concerning 3,449 patients, mainly white persons at the Mazorra Department of the Calixto García Hospital. These statistics enable one to evaluate the progress of psychiatry in Cuba. The carefully prepared statistics represent a national contribution of importance in the field of mental diseases.

Queries and Minor Notes

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

BASIC METABOLISM AND SURFACE AREA

To the Editor:—Please furnish data on basal metabolic studies in relation to surface area, particularly as to corrections, if any, that are to be made because of this factor.

Louis Miller, M.D., New York.

ANSWER.—Clinically the basal metabolic rate is expressed as a percentage above and below the theoretic normal standard for the individual, taking into account his sex, age, height and weight. The basal metabolism is most closely related to the surface area and is less directly related to height or weight. The surface area can be calculated from the following formula if the height and weight are known (Du Bois): $A = W^{0.425} \times H^{0.725} \times 71.84$, where A is the surface area in square centimeters, W the weight in kilograms and H the height in centimeters.

In the average man of normal average build at the age of 25, about 40 calories are given off every hour per square meter of body surface; in the woman about 36 calories. The surface area of an average adult is about 1.8 square meters. The basal metabolic rate varies greatly with age, being considerably higher per square meter of surface area in children than in adults. There is a gradual fall in the metabolic rate as age advances. These facts are well shown in the following table:

Age in Years	B. M. R. in Calories per Sq. M. per Hour	
	Male	Female
2	57.0	52.5
6	53.0	50.6
8	51.8	47.0
10	48.5	45.9
16	45.7	38.8
20	41.4	36.1
30	39.3	35.7
40	38.0	35.7
50	36.7	34.0
60	35.5	32.6

The figures given for metabolic rate are average normal values; average implies that higher and lower values do occur. It is generally accepted that the normal range of metabolism in persons of identical physical status may vary from plus 10 per cent to minus 10 per cent commonly, and rarely by as much as plus or minus 20 per cent.

ALCOHOLIC ANTIFREEZE FLUIDS

To the Editor:—A patient gives the history of losing consciousness on inhaling fumes coming from a leak in an automobile heating line. The radiator contained alcohol antifreeze at the time. Can radiator alcohol cause syncope?

Anthony C. Yerkovich, M.D., Lackawanna, N. Y.

ANSWER.—Alcoholic antifreeze fluids for automobiles are likely to represent methanol, a mixture of methanol and isopropyl, or completely denatured ethyl alcohol. No constituent under the ordinary conditions of automobile heater leaks may be expected to lead to unconsciousness or any severe systemic disturbance. In automobile manufacture at the end of the final assembly line and subsequent inspection work, during cold months, a number of workmen continually fill and drain radiators requiring antifreeze. At times spillage is high. No difficulty arises, and none is expected. Instead, the possibility of carbon monoxide exposure should be explored. Having ruled out carbon monoxide, one might direct attention to exquisite intolerance for antifreeze alcohols and to functional disturbances. The odors of antifreeze fluids while organically harmless, provoke emotional responses in some susceptible persons. Offensive odors may serve as the trigger for convulsive states wholly unrelated to any direct chemical action.

ENCEPHALITIS IMMUNIZATION

To the Editor:—Is there an immunizing vaccine against encephalitis? A patient going to Japan is apprehensive.

Harold B. Keyes, M.D., New York.

ANSWER.—Immunization against the Japanese type of encephalitis is still in the stage of animal experimentation and has not been applied to human beings.

EYE DISABILITY RATINGS

To the Editor:—I wish you would settle a controversy, and, if necessary, give us authority for changing a figure in the "Schedule of Disability Ratings—1945" of the Veterans Administration. This book, our "bible" of disability ratings, mentions that the Industrial Motor Field Chart, made up of 20 squares, each 8⅜ by 10½ inches (21.3 by 26.7 cm.), should be used at a distance of 10 feet (304.8 cm.). This has never seemed right to me. Dr. Albert C. Snell, in his "Treatise on Medicolegal Ophthalmology," 1940 edition, stated that each square should subtend an arc of 20 by 25 degrees. Such an arc is subtended on our Industrial Motor Field Chart, each square being 8¾ by 10½ inches (22.2 by 26.7 cm.) at 2½ feet instead of 10 feet (304.8 cm.). I wish that you would send us an official letter stating the exact distance for testing binocular fixation in which each little rectangle measures 8¾ by 10½ inches. This is a matter of great importance as far as the Veterans Administration compensations are concerned.

Karl D. MacMillan, M.D., Pittsburgh.

ANSWER.—The American Medical Association Industrial Motor Chart is intended to explore a motor field of 20 degrees horizontally and vertically. It is divided into 20 small rectangles 4 by 5 degrees each, to provide a larger (12 degree) motor field below the primary position and a smaller (only 8 degree) motor field above the primary position, and 10 degrees on both sides of it. The dimensions of a 5 by 4 degree rectangle at 10 feet correspond to 10½ by 8⅜ inches (not 8¾ inches). If it is desired to use this chart at 2½ feet the rectangles would have to be reduced to one fourth of these dimensions.

SPECIFIC GRAVITY OF BACTERIA

To the Editor:—What is the specific gravity of the tubercle bacillus?

L. W. Garst, M.D., Catawba Sanatorium, Va.

ANSWER.—Specific gravity determinations of bacteria are not entirely satisfactory because of a number of variables. Such factors as the water content, conditions under which the bacteria are cultured, age of the bacteria, the proportions of such substances as carbohydrates and proteins with specific weight greater than that of water in proportion to light substances, such as fat, account for differences in specific gravity, as well as other factors which can influence all of the physical and cultural characteristics of bacteria. In discussions on this subject tubercle bacilli are usually grouped with those organisms having specific gravity varying from 1.09 to 1.13. An authentic source of information on this subject is: "Bacterial Chemistry and Physiology," by Porter, published by John Wiley & Sons, Inc., New York.

Hr INCOMPATIBILITY

To the Editor:—A patient aged 33, tripara, trigravida, is anxious to have more children. She is Rh positive; her husband is Rh negative. The first two pregnancies were uneventful. About three weeks from term in the third pregnancy eclampsia developed, but she responded to treatment and labor was induced. The toxemic symptoms cleared rapidly, and within four weeks of delivery the patient was normal in all respects. The baby showed signs of distress both before and during labor but survived. The vernix caseosa was stained a deep yellow, but the baby showed no jaundice at any time and is a normal healthy child. Close questioning later revealed that toxemic symptoms had developed about three days prior to the onset of the eclampsia and that for several days before this the patient had eaten large amounts of ham. Would there be any contraindications to future pregnancies on the basis of this history or the Rh factors?

M.D., New Mexico.

ANSWER.—An Rh-positive wife of an Rh-negative man is extremely unlikely to have a baby affected with erythroblastosis due to Rh incompatibility. It would have to be caused by so-called Hr incompatibility—a rare occurrence. Therefore there is no contraindication to future pregnancies on the basis of the Rh factor.

SHORT WAVE DIATHERMY

To the Editor:—I advised a patient to take some short wave treatments for an arthritic condition, and subsequently she went to an orthopedist who cautioned her against short wave treatments, claiming that they dried up the tissues. Please discuss the value of short wave treatments in relation to chronic inflammatory conditions of muscle, joint and nerve.

M.D., New York.

ANSWER.—Short wave diathermy is a valuable type of electrotherapy but is not to be recommended to the exclusion of other thermotherapeutic measures. When it is properly used, "drying up of the tissues" does not result. Short wave diathermy is produced (by means of a vacuum tube oscillator) by an oscillating electric current of a relatively high frequency (from 10,000 kilocycles per second at a wavelength of 30 meters to 100,000 kilocycles per second at a wavelength of 3 meters). Frequencies greater than 10,000 kilocycles per second provide heating without

undesirable nonthermal effects. Resistance to the current offered by the tissues is the means by which heating is accomplished.

To obtain clinically useful thermotherapeutic effects in a specific area and at the same time to avoid undue heating of the overlying skin insulation by pads or air spacing between the electrode and the body surface is standard practice. In areas where normal circulation prevails and sufficient soft tissue is present, uniform heating to a depth of 5 cm. (2 inches) may be anticipated.

All the substantiated benefits attributed to use of short wave diathermy can be adequately explained by physiologic effects of heating. When it is properly applied, continued exposure to short wave diathermy has been shown not to produce specific inflammatory reactions or other untoward effects on bodily tissues.

Short wave diathermy is indicated when active hyperemia is desired. Its deeper penetration constitutes the principal advantage of short wave diathermy over most other types of heating. Thus for "chronic inflammatory conditions of muscle, joint and nerve" this method of heating often is useful; however, simpler forms of heating may be equally effective for many superficial lesions of the soft tissue.

It is not always possible to treat widespread areas by a single application of short wave diathermy; the apparatus can be dangerous if not properly used, and it is rarely adaptable to home use. Use of short wave diathermy is contraindicated in regions where circulation or sensation is impaired or the danger of hemorrhage exists, in the presence of profusely draining wounds or when metal approximates skin or deeper structures likely to be within the range of the short wave diathermy.

MACULAR DEGENERATION

To the Editor:—Please give information on the muscular implantation of crystals of methyl testosterone or other orchic substance. A patient, aged 56, has previously had it used for macular degeneration of the eye with improvement. Lester L. Graves, M.D., East Pepperell, Mass.

ANSWER.—Macular degeneration in older persons is due, in general, to sclerosis and hyaline degeneration of the choroidal circulation nourishing the macular region. Treatment of the condition is unsatisfactory because of the low vitality of the retina, which does not respond to therapeutic or stimulative measures. Testosterone is a form of substitution therapy and its use is not indicated when the gonads are functional. A review of the titles in the *Quarterly Cumulative Index Medicus* the past five years does not give any reference to this therapy in macular degeneration. The indications and contraindications to therapy with the male sex hormones are well discussed by Werner. (J. A. M. A. **132**:185, 1946).

CHRONIC SINUSITIS

To the Editor:—Please supply information on the following subjects: (1) What is the best present treatment for chronic infection of the perinasal sinuses? (2) What drug is recommended for topical anesthesia of the ear drum when a myringotomy has to be performed as a home or office procedure? M.D., Maryland.

ANSWER.—Before outlining treatment for so-called chronic sinusitis, it would be best to define what is meant by the term. In general, the feeling today is that the larger number of cases of so-called chronic sinusitis are really instances of allergic sinusitis accompanied with secondary suppuration. The presence of the first condition makes it difficult for the second one to heal and requires a careful study for the detection of the agents producing the allergic state. This may mean the use of elimination diets, the creation of relatively dust-free bedrooms and careful cutaneous testing to determine which allergens, especially in food, one must avoid and in which cases immunity may be produced by injections of the offending agent.

The patients frequently complain of nasal obstruction and secretion, brought on by sudden changes in temperature. They may suffer from other allergies, especially the seasonal (pollen and mold) types. They have on occasion bouts of sneezing, watery nasal discharge and vague headaches. Cytologic examination of nasal secretion reveals many eosinophils, often in clumps. The nasal mucosa is often pale, though it may be red: frequently it is waterlogged. Polyps may be present, especially in the ethmoid area and roentgen examination reveals cloudiness and mucosal thickness in nearly all of the sinuses.

The onset of a "cold" or mild inflammatory rhinitis in the described situation manifestly finds the course protracted, especially because the ostiums of the various sinuses are blocked by swollen mucosa.

Diagnosis of the underlying allergic causes and their removal, use of effective antihistaminics and the occasional necessary removal of polyps that obstruct the drainage will aid greatly in amelioration of a condition which by its nature can, in the worst cases, never be completely relieved and is prone to frequent exacerbations and recurrences.

Chronic suppurative sinusitis, unaccompanied with nasal allergy, seldom involves all or nearly all of the sinuses on one or both sides of the nose. The antrum on one side, as a rule, is the offending area about 95 per cent of the time, with the frontal sinus sinus next in frequency. The patients often complain of little more than postnasal dripping. Their relatives and friends complain oftener of a foul odor to the breath than does the patient himself, and headaches and pain are not prominent symptoms, except at times of acute exacerbation.

Irrigation of such an involved antrum reveals often thick yellow or green pus with a pronounced odor. The condition sometimes responds quickly to irrigation; often instillation, after irrigation, of sulfathiazol in a suspension, in water or in a vasoconstrictor solution, is helpful. Many today dispense with irrigation and use the methods advocated by Proetz and Parkinson.

A reasonable attempt at the aforementioned treatment with failure should be followed by the performance of an antrum window operation. If this fails, as it does on occasion, then it should be followed by the more radical so-called Caldwell-Luc procedure. Any involved teeth with a persistent infection should, of course, be treated.

Bonain's solution (equal parts of cocaine, menthol and phenol) is the most commonly used topical analgesic. With the patient reclining and the affected side uppermost, a few drops of the preparation dropped into the canal and allowed to remain in contact with the membrana tympani for a few minutes produces a moderately satisfactory anesthesia. The phenol is in all probability the active agent, and a 30 per cent solution of phenol in glycerine would in all likelihood be equally as effective as Bonain's solution.

"BLISTERBUG"

To the Editor:—A 9 month old boy put an insect called a "blisterbug" in his mouth. His mother succeeded in extricating one wing and the head of the insect. The rest was swallowed. About twelve hours later the child vomited and brought up the insect. The child acted as though he had intestinal cramps. About twenty-four hours after the ingestion of the insect, it was noted that his urine stained the diapers pink. About thirty-six hours after the bug was eaten, the urine was no longer macroscopically hematuric, but contained innumerable red blood cells in the uncentrifuged microscopic specimen. Otherwise the child appeared healthy. About one week ago he was "bitten," or otherwise contacted, by a "blisterbug," and a "huge blister" developed at the site of the contact, according to the parents. We wonder whether such hematuria after contact with blisterbugs, especially mucous membrane contact, has been observed before, and what is known about its mechanism.

Heinrich Lamm, M.D., La Feria, Texas.

ANSWER.—The so-called blisterbug is not a bug but a beetle and not one beetle but any one of a group or family, Meloidae. This family includes the "Spanish fly," Cantharis vesicatoria. Cantharidin is produced from certain species of this family and seems to be the active principle. Some members of the family Staphylinidae (rove beetles) also cause urticaria and blistering. The active principle here is similar to cantharidin but slow in action. In all the urticating properties are in the body fluid. Accidental crushing of a beetle on the skin causes vesication, which can be distinguished from a bite or sting by absence of a puncture mark. Other beetles which cause blistering have been reported, as a night-flying beetle of the family Paussidae (in South East Africa), and at least two sessinid (coconut) beetles of the family Oedemeridae in certain Pacific islands, and Eobia of the same family. These cause burning pain on contact with the body fluid and a fairly harmless large vesicle. Mucosal irritation of the nose and eyes is caused by a gaseous product of the small flour beetle, Tribolium confusum.

Infection of man with beetles has been reported at any stage of their development and is called cantharisis. The location may be intestinal, urinary, ocular, dermal or nasal. While rare, intestinal cantharisis is credited with causing severe diarrhea in children in Ceylon.

In treatment, no drug is available which counteracts the vesicating symptoms. Mild alkaline lotions are recommended and a compress of saturated magnesium sulfate solution may be applied. Avoidance of these beetles is the sure preventive. Entomologic control is possible where they are numerous in fields and forage crops by the use of arsenic sprays and methods applicable to grasshopper control.

Blister beetles have been the subject of numerous reports. The general treatment is symptomatic and supportive. Swartz and Wanamaker (J. A. M. A. **131**:594 [June 15] 1946) stated that "more than 200 species of blister beetles have been found

in the United States." They described one, Epicauta cinerea, which may crawl harmlessly on the skin but when pressed by clothing or irritated exudes an irritant fluid which causes blistering in twenty-four hours. Opening the blisters and application of mild antiseptics results in healing without scarring in ten days. A case of intestinal canthariasis due to Tenebrio molitor (meal worm) was reported by Palmer (*J. Parasitol.* **32**:54 [Feb.] 1946) in a child of 4 months. Within the past three years no report has been found of hematuria as a result of blister beetle contact.

BASAL METABOLISM IN LIVER DISEASE

To the Editor:—I have been unable to find any references to basal metabolic rates in conditions associated with hepatic damage. I have been informed that theoretically the basal metabolic rate should be elevated in hepatitis and in conditions associated with hepatic damage. Please clarify this point. Please give references.

Benjamin H. Archer, M.D., New York.

ANSWER.—Basal metabolic rates usually fall within normal limits in parenchymatous hepatic disease, as Aub and Means (*Arch. Int. Med.* **28**:173-191, 1921) demonstrated. An occasional patient, however, presents an elevated rate of the order of magnitude of about plus 25 per cent. This phenomenon has received little attention and is barely mentioned in medical literature. Eppinger noted it in his celebrated monograph (Die Leberkrankheiten, Julius Springer, 1937) but did not explain it. To date, no adequate explanation for the occasional elevation in the metabolic rate in hepatic disease can be offered. Some evidence seems to indicate that it is not due to protein catabolism or acceleration of the specific dynamic action of foodstuffs. In several cases of hepatic disease in which the basal metabolic rate was high, which were studied in one metabolic clinic, there was no evidence whatever of hyperthyroidism. The suggestion has been made that the diseased liver, which is known to lose its capacity to inactivate estrogenic compounds, may similarly fail to deal with compounds originating in the thyroid. No proof of this hypothesis is available at present.

BLINDNESS FOLLOWING HEMORRHAGE

To the Editor:—A white man, aged 52, had severe bilateral atrophy of both optic nerves in 1919. This he attributes to severe diarrhea and hemorrhage, during which he became totally unconscious. The condition developed at Spalato, Jugoslavia, on the Adriatic Sea, in the spring of 1919. He remains blind at this time. Could the blindness be due to pronounced anemia following the hemorrhage and diarrhea?

Joseph J. Hanus, M.D., Austin, Texas.

ANSWER.—Blindness after exsanguination or general collapse is a rare but well known clinical catastrophe. The pathogenesis is retinal ischemia, which determines a noninflammatory degeneration of the ganglion cells and their fibers and sequential optic atrophy. Amaurosis has been noted in the collapse stage of cholera and typhus, but more frequently after recurrent profuse hemorrhages complicating medical conditions such as peptic ulcer, pulmonary tuberculosis, parturition and epistaxis and rarely from wounds and surgical treatment. The blindness is usually, but not necessarily, bilateral, occurs within the first week or two after the hemorrhages and is permanent in half the patients affected. The pupil is always fixed and dilated. The ophthalmoscope shows attenuated vessels, a pale disk and occasionally retinal hemorrhages or fluffy patches of edema. Cerebral ischemia is sometimes also evident, as manifested by sensory and motor anomalies, aphasia, deafness, amnesia, nystagmus and polyneuritis. The logical treatment is prompt transfusion and repeated paracenteses of the cornea.

STERILITY FROM HEAT

To the Editor:—Is it possible to cause sterility in the male by the use of diathermy induced through an orificial electrode, thus causing a temperature elevation in the region of the prostate gland and transference of heat to the testicles?

M.D., Ohio.

ANSWER.—Evidence from various sources shows that heat can easily damage the testicles. Febrile diseases in men sometimes cause pronounced deterioration in the quality of the semen. In laboratory animals even moderate heat applied to the scrotum leads to degeneration of the seminiferous tubules. The poor functioning of undescended testicles is probably due in part to their abnormally warm environment in the groin. Rams have been rendered sterile by the wearing of a red flannel suspensory bandage. In spite of this remarkable sensitivity of the testicles to heat, it seems unlikely that diathermy applied to the prostate through an orificial electrode would produce enough temperature elevation in the scrotum to do any harm. I know of nothing in the literature on this subject.

INFECTIOUS MONONUCLEOSIS

To the Editor:—A patient 23 years of age has swollen glands in the left side of his neck. By blood smear the disease has been diagnosed as acute infectious mononucleosis. Are there authentic reports of specific remedies for this disease? The patient has only a slight fever but is apprehensive.

Francis M. Findlay, M.D., Kingman, Ariz.

ANSWER.—Infectious mononucleosis is thought to be caused by a virus. Penicillin, streptomycin and sulfonamide drugs are of no value in this disease unless there is a secondary bacterial infection. Lassen and Thomsen (*Acta Med. Scandinav.* **104**:498, 1940) used specific convalescent serum in 12 patients with a severe form of infectious mononucleosis. Serum was obtained from convalescent patients within two weeks after their fever subsided and was given intravenously in doses varying from 50 cc. to 300 cc. Objective improvement within twenty-four hours was noted in 11 patients and subjective improvement occurred in all. Nine patients became afebrile within forty-eight hours. In most patients with infectious mononucleosis the disease runs a benign course and requires no specific treatment. If convalescent serum can be obtained, it deserves trial in the occasional case of severe disease.

POSTMASTECTOMY LYMPHEDEMA

To the Editor:—What can be done to relieve lymphedema following radical mastectomy? Edema did not follow the operative procedure immediately but came on three months later. Evidence of recurrence in the scar or in the axilla is absent. The patient had postoperative roentgen therapy.

M.D., New York.

ANSWER.—The treatment of lymphedema following radical mastectomy has been found to be most discouraging. Elevation of the involved arm to a horizontal position for as much of the time as possible, together with gentle massage of the arm from the wrist toward the shoulder, have reduced the swelling in some instances. Modified Kondoleon operations or attempts to establish lymphatic drainage by inserting a subcutaneous thread have had disappointing results. The condition is most likely to occur in obese persons. Perhaps the best treatment would be an attempt to avoid the situation by meticulous dissection during the operation, with particular attention paid the cephalic and subscapular vessels which should be preserved. In the absence of definite evidence of recurrence of the malignant process, roentgen treatment is to be avoided, as this may have a tendency to aggravate the condition.

MONILIA ALBICANS

To the Editor:—What is the preferred treatment of pulmonary moniliasis? Is the insufflation or inhalation of ethyl iodide useful? Culture from bronchoscopic aspiration shows Monilia albicans.

Clifford H. Kalb, M.D., Milwaukee.

ANSWER.—Specific therapy is not available. It is difficult to see how ethyl iodide could be useful. Since moniliasis is often a secondary infection, search should be made for some possible underlying disease, like tuberculosis or carcinoma. Treatment is symptomatic and supportive. It would be important to know whether Monilia cells are present in great numbers or not present in the sputum. Certain persons harbor Monilia normally as saprophytes. The organisms may not be the cause of the disease in question.

VOCAL CORD PARALYSIS

To the Editor:—I noticed in The Journal of Sept. 4, page 103, your answer to the question of Dr. Harry Boatwright, Kingsport, Tenn., regarding a left vocal cord paralysis. In the answer it is stated that not more than 5 per cent of the patients will regain function. I call attention to the work we have been doing at the Post-Graduate Hospital in New York during the past ten years in regard to treatment of this condition. In our material, which comprises about 100 cases, the recovery rate is about 70 per cent with electrotherapy. Our material is now in the process of compilation for publication. In the meantime, may I refer you to an article by Dr. Charles Gordon Heyd (*New York State J. Med.* **44**:17 [Sept.] 1944), in which our technic is described. Further references to our method are found in the *Journal of Nervous and Mental Diseases* (**98**:183 [Aug.] 1943) and in the *Annals of Surgery* (Weeks, C., and Hinton, J. W.: Extralaryngeal Division of the Recurrent Laryngeal Nerve, **116**:251 [Aug.] 1942).

Charles O. Fiertz, M.D.

COLA AND ASPIRIN

To the Editor:—In reference to the query, "Cola and Aspirin" (The Journal, July 3, 1948), may I state that the caffeine content of coca-cola does not exceed 40 mg. per bottle and is uniform everywhere in the world.

W. P. Heath, Vice President,
Chemical Control, The Coca-Cola Co., New York.